APPENDIX D

ESTIMATING THE SIZE OF THE CONVENTIONAL CONFORMING MARKET FOR EACH HOUSING GOAL

A. Introduction

In establishing the three housing goals, the Secretary is required to assess, among a number of factors, the size of the conventional market for each goal. This Appendix explains HUD's methodology for estimating the size of the conventional market for each of the three housing goals. Following this introduction, Section B describes the main components of HUD's market-share model and identifies those parameters that have a large effect on the relative market shares. Sections C and D discuss two particularly important market parameters, the size of the multifamily market and the share of the single-family mortgage market accounted for by rental properties. With this as background, Section E provides a more systematic presentation of the model's equations and main assumptions. Sections F, G, and H report HUD's estimates for the Low- and Moderate-Income Goal, the Central Cities, Rural Areas, and other Underserved Areas Goal, and the Special Affordable Housing Goal, respectively. Finally, Section I examines the impact of higher FHA loan limits on the conventional market.

In developing this rule, HUD has carefully reviewed existing information on mortgage activity in order to understand the weakness of various data sources and has conducted sensitivity analyses to show the effects of alternative parameter assumptions. Data on the multifamily mortgage market from HUD’s Property Owners and Managers’ Survey (POMS), not available at the time published the 1995 GSE Final Rule, is utilized here. HUD is well aware of uncertainties with some of the data and much of this Appendix is spent discussing the effects of alternative assumptions about data parameters and presenting the results of an extensive set of sensitivity analyses.

In a critique of HUD’s market share model, Blackley and Follain (1995, 1996) concluded that conceptually HUD had chosen a reasonable approach to determining the size of the mortgage market that qualifies for each of the three housing goals.[1] Blackley and Follain correctly note that the challenge lies in getting accurate estimates of the model’s parameters.

This appendix reviews in some detail HUD’s efforts to combine information from several mortgage market data bases to obtain reasonable values for the model’s parameters. Numerous sensitivity analyses are performed in order to arrive at a set of reasonable market estimates.

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[1] Dixie M. Blackley and James R. Follain, "A Critique of the Methodology Used to Determine Affordable Housing Goals for the Government Sponsored Housing Enterprises," unpublished report prepared for Office of Policy Development and Research, Department of Housing and Urban Development, October 1995; and “HUD’s Market Share Methodology and its Housing Goals for the Government Sponsored Enterprises,” unpublished paper, March 1996.

The single-family market analysis in this appendix is based heavily on HMDA data for the years 1992 to 1998. The HMDA data for 1998 were not released until August 1999, which gave HUD little time to incorporate that data fully into the analyses reported in these Appendices; thus, the discussion below will often focus on the year 1997, with any differences from 1998 briefly noted. However, it should be noted that the year 1997 represents a more typical mortgage market than the heavy refinancing year of 1998. Still, important shifts in mortgage funding that occurred during 1998 will be highlighted in order to offer as complete and updated analysis as possible.

B. Overview of HUD's Market Share Methodology

1. *Definition*

The size of the market for each housing goal is one of the factors that the Secretary is required to consider when setting the level of each housing goal.[2] Using the Low- and Moderate-Income Housing Goal as an example, the market share in a particular year is defined as follows:

> *Low- and Moderate-Income Share of Market:* The number of dwelling units financed by the primary mortgage market in a particular calendar year that are occupied by (or affordable to, in the case of rental units) families with incomes equal to or less than the area median income *divided by* the total number of dwelling units financed in the conforming conventional primary mortgage market.

There are three important aspects to this definition. First, the market is defined in terms of "dwelling units" rather than, for example, "value of mortgages" or "number of properties." Second, the units are "financed" units rather than the entire stock of all mortgaged dwelling units; that is, the market-share concept is based on the mortgage flow in a particular year, which will be smaller than total outstanding mortgage debt. Third, the low- and moderate-income market is expressed relative to the overall conforming conventional market, which is the relevant market for the GSEs.[3] The low- and moderate-income market is defined as a percentage of the conforming market; this percentage approach maintains consistency with the method for computing each GSE's performance under the Low- and Moderate-Income Goal (that is, the number of low- and moderate-income dwelling units financed by GSE mortgage purchases relative to the overall number of dwelling units financed by GSE mortgage purchases).

2. *Three-Step Procedure*

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[2] Sections 1332(b)(4), 1333(a)(2), and 1334(b)(4).

[3] So-called "jumbo" mortgages, greater than $227,150 in 1998 for 1-unit properties, are excluded in defining the conforming market. There is some overlap of loans eligible for purchase by the GSEs with loans insured by the FHA and guaranteed by the Veterans Administration.

Ideally, computing the low- and moderate-income market share would be straightforward, consisting of three steps:

(Step 1) Projecting the market shares of the four major property types included in the conventional conforming mortgage market:

- (a) Single-family owner-occupied dwelling units (SF-O units);
- (b) Rental units in 2-4 unit properties where the owner occupies one unit (SF 2-4 units);[4]
- (c) Rental units in one-to-four unit investor-owned properties (SF Investor units); and,
- (d) Rental units in multifamily (5 or more units) properties (MF units).[5]

(Step 2) Projecting the "goal percentage" for each of the above four property types (for example, the "Low- and Moderate-Income Goal percentage for single-family owner-occupied properties" is the percentage of those dwelling units financed by mortgages in a particular year that are occupied by households with incomes below the area median).

(Step 3) Multiplying the four percentages in (2) by their corresponding market shares in (1), and summing the results to arrive at an estimate of the overall share of dwelling units financed by mortgages that are occupied by low- and moderate-income families.

The four property types are analyzed separately because of their differences in low- and moderate-income occupancy. Rental properties have substantially higher percentages of low- and moderate-income occupants than owner-occupied properties. This can be seen by the following illustration of Step 3's basic formula for calculating the size of the low- and moderate-income market:[6]

	(Step 1)	(Step 2)	(Step 3)
Property	Share	Low-Mod	Multiply

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[4] The owner of the SF 2-4 property is counted in (a).

[5] Property types (b), (c), and (d) consist of rental units. Property types (b) and (c) must sometimes be combined due to data limitations; in this case, they are referred to as "single-family rental units" (SF-R units).

[6] The property shares and low-mod percentages reported here are based on one set of model assumptions; other sets of assumptions are discussed in Section E.

Type	of Market	Share	(1) x (2)
(a) SF-O………………….	71.1%	40.0%	28.4%
(b) SF 2-4………………..	2.0%	90.0%	1.8%
(c) SF Investor…………...	10.7%	90.0%	9.6%
(d) MF…………………...	16.2%	90.0%	14.6%
Total Market……………..	100.0%		54.4%

In this example, low- and moderate-income dwelling units are estimated to account for 54 percent of the total number of dwelling units financed in the conforming mortgage market. To examine the other housing goals, the "goal percentages" in Step 2 would be changed and the new "goal percentages" would be multiplied by Step 1's property distribution, which remains constant. For example, the Central Cities, Rural Areas, and Other Underserved Areas Goal[7] would be derived as follows under one set of assumptions:

Property Type	(Step 1) Share of Market	(Step 2) Underserved Area Share	(Step 3) Multiply (1) x (2)
(a) SF-O……………	71.1%	25.0%	17.8%
(b) SF 2-4…………..	2.0%	42.5%	0.9%
(c) SF Investor……..	10.7%	42.5%	4.5%
(d) MF……………...	16.2%	48.0%	7.8%
Total Market……….	100.0%		31.0%

In this example, units eligible under the Underserved Areas Goal are estimated to account for 31 percent of the total number of dwelling units financed in the conforming mortgage market.

3. Data Issues

Unfortunately, complete and consistent mortgage data are not readily available for carrying out the above three steps. A single data set for calculating either the property shares or the housing goal percentages does not exist. However, there are several major data bases that provide a wealth of useful information on the mortgage market. HUD combined information from the following sources: the Home Mortgage Disclosure Act (HMDA) reports, the American Housing Survey (AHS), HUD's Survey of Mortgage Lending Activity (SMLA), Property Owners and Managers Survey (POMS) and the Census Bureau's Residential Finance Survey (RFS). In addition, information on the mortgage market was obtained from the Mortgage Bankers Association, Fannie Mae, Freddie Mac and other organizations.

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[7] This goal will be referred to as the "Underserved Areas Goal".

*Property Shares***.** To derive the property shares, HUD started with forecasts of single-family mortgage originations (expressed in dollars). These forecasts, which are available from the GSEs and industry groups such as the Mortgage Bankers Association, are based on HUD's SMLA. The SMLA does not provide information on conforming mortgages, on owner versus renter mortgages, or on the number of units financed. Thus, to estimate the number of single-family units financed in the conforming conventional market, HUD had to project certain market parameters based on its judgment about the reliability of different data sources. Sections D and E report HUD's findings related to the single-family market.

Total market originations are obtained by adding multifamily originations to the single-family estimate. Because of the wide range of estimates available, the size of the multifamily mortgage market turned out to be one of the most controversial issues raised during the 1995 rule-making process. In 1997, HMDA reported about $20.0 billion in multifamily originations while the SMLA reported more than double that amount ($47.9 billion). Because most renters qualify under the Low- and Moderate-Income Goal, the chosen market size for multifamily can have a substantial effect on the overall estimate of the low- and moderate-income market (as well as on the estimate of the special affordable market). Thus, it is important to consider estimates of the size of the multifamily market in some detail, as Section C does. In addition, given the uncertainty surrounding estimates of the multifamily mortgage market, it is important to consider a range of market estimates, as Sections G - H do.

*Goal Percentages***.** To derive the goal percentages for each property type, HUD relied heavily on HMDA, AHS, and POMS data. For single-family owner originations, HMDA provides comprehensive information on borrower incomes and census tract locations for metropolitan areas. Unfortunately, it provides no information on the incomes of renters living in mortgaged properties (either single-family or multifamily) or on the rents (and therefore the affordability) of rental units in mortgaged properties. The AHS, however, does provide a wealth of information on rents and the affordability of the outstanding stock of single-family and multifamily rental properties. An important issue here concerns whether rent data for the stock of rental properties can serve as a proxy for rents on newly-mortgaged rental properties. The POMS data, which were not available during the 1995 rule-making process, are used below to examine the rents of newly-mortgaged rental properties; thus, the POMS data supplements the AHS data. The data base issues as well as other technical issues related to the goal percentages (such as the need to consider a range of mortgage market environments) are discussed in Sections F, G, and H, which present the market share estimates for the Low- and Moderate-Income Goal, the Underserved Areas Goal, and the Special Affordable Goal, respectively.

4. Conclusions

HUD is using the same basic methodology for estimating market shares that it used during

1995. As demonstrated in the remainder of this Appendix, HUD has attempted to reduce the range of uncertainty around its market estimates by carefully reviewing all known major mortgage data sources and by conducting numerous sensitivity analyses to show the effects of alternative assumptions. Sections C, D, and E report findings related to the property share distributions called for in Step 1, while Sections F, G, and H report findings related to the goal-specific market parameters called for in Step 2. These latter sections also report the overall market estimates for each housing goal calculated in Step 3.

During the 1995 rule-making process, HUD contracted with the Urban Institute to comment on the reasonableness of its market share approach and to conduct analyses related to specific comments received from the public about its market share methodology. HUD continues to rely on several findings from the Urban Institute reports and they are again discussed throughout this Appendix. Since 1995, HUD has continued to examine the reliability of data sources about mortgage activity. HUD's Office of Policy Development and Research has published several studies concerning the reliability of HMDA data.[8] In addition, since 1995, HUD has gathered additional information regarding the mortgages for multifamily and single-family rental properties through the Property Owners and Managers Survey (POMS). Findings regarding the magnitude of multifamily originations, as well as the rent and affordability characteristics of mortgages backing both single-family and multifamily rental properties have been made by combining data from POMS with that from internal Census Bureau files from the 1995 American Housing Survey-National Sample. The results of these more recent analyses will be presented in the following sections.

C. Size of the Conventional Multifamily Mortgage Market

This section derives projections of conventional multifamily mortgage origination volume.[9]

The multifamily sector is especially important in the establishment of housing goals for Fannie Mae and Freddie Mac because multifamily properties are overwhelmingly occupied by low- and moderate-income families. For example, in 1997, 13 percent of units financed by Fannie Mae were multifamily, but 90 percent of those units met the Low- and Moderate-Income Goal, accounting for 27 percent of all of Fannie Mae's low- and moderate-income purchases for that year.[10] Multifamily acquisitions are also of strategic significance with regard to the Special Affordable Goal. In 1997, 57 percent of units backing Freddie Mac's multifamily acquisitions met the Special Affordable Goal, representing 31 percent of units counted toward its Special Affordable Goal, at a time when multifamily units represented only 8 percent of total annual purchase volume.[11]

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[8] See Randall M. Scheessele, *HMDA Coverage of the Mortgage Market*, Housing Finance Working Paper No. 7, Office of Policy Development and Research, Department of Housing and Urban Development, July 1998; and *1998 HMDA Highlights*, Housing Finance Working Paper No. HF-009, Office of Policy Development and Research, Department of Housing and Urban Development, October 1999.

[9] Because they are not counted toward the GSE housing goals (with the exception of a relatively small risk-sharing program), FHA mortgages are excluded from this analysis. Other categories of mortgages, considering the type of insurer, servicer, or holder, do not tend to have mortgage characteristics that appear to differ substantially from the multifamily mortgages that are purchased by Fannie Mae and Freddie Mac. There is thus no particular basis for excluding them.

This discussion is organized as follows: Section 1 identifies and evaluates available historical data resources. Section 2 undertakes an analysis of estimated conforming multifamily origination volume for 1995 through 1998. Section 3 establishes projections regarding conventional multifamily origination volume for the year 2000 and beyond.

1. Conventional multifamily origination volumes, 1987-1997

Two of the principal sources of evidence on conventional multifamily origination volumes are Home Mortgage Disclosure Act data base (HMDA) and the HUD Survey of Mortgage Lending Activity (SMLA).

a. Survey of Mortgage Lending Activity (SMLA)

The data that enter into SMLA are compiled by HUD from source materials generated in various ways from the different institutional types of mortgage lenders. Data on savings associations are collected for HUD by the Office of Thrift Supervision; these data cover all thrifts, not a sample. Mortgage company and life insurance company data are collected through sample surveys conducted by the Mortgage Bankers Association of America and the American Council of Life Insurance, respectively. Data on commercial banks and mutual savings banks are collected through sample surveys conducted by the American Bankers Association. The Federal credit agencies and State credit agencies report their data directly to HUD. Local credit agency data are collected by HUD staff from a publication that lists their mortgage financing activities.

b. Home Mortgage Disclosure Act (HMDA)

HMDA data are collected by lending institutions and reported to their respective regulators as required by law. HMDA was enacted as a mechanism to permit the public to determine locations of properties on which local depository institutions make mortgage loans, “to enable them to determine whether depository institutions are filling their obligations to serve the housing needs of the communities and neighborhoods in which they are located...” (12 USC

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[10] Corresponding percentages for Freddie Mac were 95 percent and 19 percent. Missing data are excluded from these calculations. Source: Annual Housing Activity Reports, 1997.

[11] Corresponding percentages for Fannie Mae were 54 percent and 44 percent.

2801). HMDA reporting requirements generally apply to all depository lenders with more than $29 million in total assets and which have offices in Metropolitan Statistical Areas. Reporting is generally required of other mortgage lending institutions (e.g. mortgage bankers) originating at least 100 home purchase loans annually provided that home purchase loan originations exceed 10 percent of total loans. Reporting is required for all loans closed in the name of the lending institution and loans approved and later acquired by the lending institution, including multifamily loans. Thus, the HMDA data base concentrates on lending by depository institutions in metropolitan areas but, unlike SMLA and RFS, it is not a sample survey; it is intended to include loan-level data on all loans made by the institutions that are required to file reports.

Table D.1 presents figures for 1987 through 1997 for SMLA and HMDA.[12] The main question raised by this comparison is why SMLA and HMDA report such different multifamily estimates. Part of the problem arises from double-counting of originations by mortgage banks in the American Bankers Association (ABA) and Mortgage Bankers Association (MBA) surveys conducted as part of SMLA. Originations by mortgage banks which are affiliated with commercial banks may be counted in both surveys.

There is also evidence that undercounting of multifamily originations in HMDA contributes to observed discrepancies between HMDA and SMLA. For example, less than half of Fannie Mae's 1997 acquisition volume of mortgages originated in 1997 are reported in HMDA. HMDA reports that Freddie Mac purchased 14 loans from mortgage banks in 1997, yet in loan-level data provided to HUD, Freddie Mac indicates that purchased 453 loans from mortgage bankers.[13] Further evidence of the poor quality of the HMDA multifamily data is the fact that it reported that in 1997 a larger volume of multifamily loans were sold to Freddie Mac than to Fannie Mae, when in fact Freddie Mac's purchases were less than that of Fannie Mae's, based on loan-level data provided by the GSEs to HUD.

INSERT TABLE D.1 and TABLE D.2 HERE

In addition, the HMDA data base does not cover a number of important categories of multifamily lenders such as life insurance companies and State housing finance agencies, providing another reason that the HMDA data understates the size of the multifamily market.

With this in mind, we proceed to an examination of origination volumes reported by the these two data sources by type of lender. Table D.2 shows the basic figures. The columns headed

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[12] The comparison between SMLA and HMDA is provided only through 1997 because 1998 SMLA data were not available as of the time of this writing.

[13] Some of loans in the GSE data may have been originated prior to 1997, and therefore not included in 1997 HMDA totals. However, because mortgage banks ordinarily do not hold mortgages in portfolio, it is implausible that a majority of Freddie Mac's purchases from mortgage banks were originated prior to 1997.

"SMLA" and "HMDA" show aggregate dollar volumes of loan originations by category of originator in 1997.

In 1995, the Urban Institute conducted extensive analysis to address the issue of discrepancies between HMDA and SMLA. The researchers found that the 1993 SMLA multifamily figure ($30 billion in conventional originations) was too high, chiefly because of upward bias in the commercial bank originations figure, and the HMDA estimate ($12.8 billion) was too low for a variety of reasons including the omission of some categories of lenders.[14]

2. Alternative Measures

The inconsistencies between SMLA and HMDA underscore the importance of finding other ways to measure the size of the conventional multifamily market. The remainder of this discussion analyzes alternative measures based on (a) analysis of the HUD Property Owners and Managers Survey (POMS); (b) a statistical model developed by Urban Institute researchers; and (c) combining data from a variety of sources in a manner that avoids double-counting.

a. HUD Property Owners and Managers Survey (POMS)

HUD's analysis of data in the HUD Property Owners and Managers Survey (POMS) yields an estimated size of the 1995 multifamily origination market of approximately $37 billion. Analysis of this survey data is complicated by virtue of the fact that data on mortgage loan amount are missing for a large number of properties, requiring the imputation of missing values, and also because the mortgage loan amount is "topcoded" on some observations in order to protect the privacy of respondents. Such topcoding complicates the use of multiple regression techniques for imputation of missing values. In order to more effectively utilize regression techniques, HUD staff and contractors were sworn in as special employees of the Census Bureau in order to gain access to the internal Census file. The regression specification with the greatest explanatory power imputed missing loan amounts on the basis of number of units, region of the country, and a dummy variable for large properties with more than 1,000 units.[15] The use of this specification yielded an estimated total multifamily market size of $39.1 billion. After subtracting $2.3 billion in FHA-insured originations, this yields $36.7 billion as the estimated size of the conforming multifamily mortgage market in 1995, compared with the SMLA figure of $37.9 billion and the HMDA figure of $12.8 billion.[16] These results suggest that SMLA figures more accurately represent the overall size of the conventional multifamily mortgage market than does HMDA.

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[14] Amy D. Crews, Robert M. Dunsky, and James R. Follain, "What We Know about Multifamily Mortgage Originations," report for the U.S. Department of Housing and Urban Development, October 1995.

[15] R^2, a measure of the degree to which the regression specification explains the variation in mortgage loan amount for observations where this field was populated, was 0.69 for this specification.

[16] FHA volume for 1995 is from *U.S. Housing Market Conditions,* 1998:4, Table 15.

b. Urban Institute Statistical Model

In 1995, Urban Institute researchers developed a model to project multifamily origination volumes from 1992 forward, based on data from the 1991 Survey of Residential Finance.[17] They applied a statistical model of mortgage terminations based on Freddie Mac's experience from the mid-1970s to around 1990. While mortgage characteristics in 1990 are not wholly similar to the characteristics of these historical mortgages financed by Freddie Mac, nevertheless the prepayment propensities of contemporary mortgages may at least be approximated by the prepayment experience of these historical mortgages. The research methodology took account of the influence of interest rate fluctuations on prepayments of the historical mortgages; the projections assumed that prepayments are motivated mainly by property sales. Forecast total mortgage origination volume (including FHA) based on mortgages existing in 1991 were $40.8 billion for 1995. After removing FHA-insured loans totaling $2.3 billion, this method yields $38.5 billion as the estimated size of the conforming multifamily mortgage market. The latter figure is closer to the $36.7 billion POMS estimate and the $37.9 billion SMLA figure than to the $12.8 billion HMDA number.

Turning to 1997, the Urban Institute model generates a prediction of $47.2 billion. After removing $3.3 billion in FHA-insured originations, this generates an estimated conventional multifamily market figure of $43.9 billion, indicating that actual 1997 conventional origination volume may be closer to the $44.6 billion SMLA figure than to the $19.5 billion HMDA number cited earlier.

c. Alternative Approach

The increased availability of data on mortgages originated for the securitization market suggests yet another alternative method of deriving a rough estimate of the size of the conventional multifamily market as a further check on the accuracy of estimates derived from SMLA, HMDA, POMS, and the Urban Institute model. Total conventional multifamily volume can be estimated as the sum of (i) conventional nonagency (non-FHA, non-GSE) securitization; (ii) commercial bank originations less securitizations and secondary market sales or current-year and seasoned loans in portfolio; and (iii) GSE acquisitions. These data are from data published annually by *Inside MBS & ABS*, a trade newsletter; SMLA, and the loan-level data provided by the GSEs to the Department. Annual commercial bank securitization volume was calculated from a database published by *Commercial Mortgage Alert*, another trade newsletter.

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[17] Robert Dunsky, James R. Follain, and Jan Ondrich, "An Alternative Methodology to Estimate the Volume of Multifamily Mortgage Originations," report for the U.S. Department of Housing and Urban Development, October 1995.

Perhaps the most significant potential shortcoming of this approach is that nonagency securitization and GSE acquisitions include seasoned loans that are originated in years prior to those in which they are securitized or purchased on the secondary market. It is assumed here that seasoned loan transaction volume is relatively constant, in absolute volume, from year to year, which implies that the inclusion of seasoned loans will not bias the results. For example, some non-bank loans originated in 1996 will not be counted under the method proposed here until they are securitized, or purchased by a GSE, in 1997, but a similar volume of 1995 originations are not securitized or sold on the secondary market until 1996.[18] Hence the above technique generates a useful approximation to actual 1996 origination volume. A similar argument applies to other years.

It can also be argued that the SMLA commercial bank figure includes some originations by mortgage banks because of the double-counting issue discussed previously. It is assumed that these are removed when securitizations and secondary market sales are subtracted. This problem aside, the SMLA commercial bank figure appears to be derived using a new, and relatively carefully designed stratified survey, and therefore may be considered fairly reliable when used in the manner proposed here.

This method does not consider unsecuritized acquisitions by thrifts, life insurance companies, and other smaller entities in the multifamily mortgage market. In this regard, this method provides a conservative estimate of the size of the conventional multifamily market,

This method generates the following results for multifamily conventional origination volume for 1995-1997:

1995	$32.3 billion
1996	$37.2 billion
1997	$40.7 billion

The 1995 and 1997 estimates can be compared with the following estimates discussed previously:

	1995 (billions)	1997 (billions)
Urban Institute……………...	$38.5	$47.2

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[18] Loans originated by banks in 1996 and then sold on the secondary market in 1997 would count only toward the 1996 total. Such loans would count toward the 1996 total because these loans would be counted in 1996 commercial bank originations less sales per the SMLA, since they are not sold in 1996. In 1997, when they are sold on the secondary market, such loans would be added to either the GSE acquisition or nonagency securitization totals, but would be subtracted from commercial bank originations less loan sales per the SMLA. The net effect of adding such loans to the GSE/nonagency categories and subtracting them from the commercial bank category is that they would not be counted toward the 1997 total.

POMS………………………	$36.7	n/a
SMLA figure ……………….	$37.9	$44.6
HMDA ……………………..	$12.8	$19.5
Alternative approach………..	$32.3	$40.7

The market estimates based on securitization data are thus somewhat lower that those derived from the POMS and SMLA surveys and by the Urban Institute model, but are considerably higher than those derived from HMDA.

In discussions with HUD staff, Fannie Mae has put the estimated size of the 1997 conforming multifamily market at approximately $35 - $40 billion, based upon a combination of various data sources. This range is slightly more conservative than the $40.7 million figure derived here using securitization, GSE, and ABA data.

Preliminary indications suggest that multifamily origination volume in 1998 is unusually high. Unfortunately, 1998 SMLA data were not yet available as of the time of this writing. If 1997 SMLA data are used as a proxy for 1998 multifamily commercial bank originations, and added to nonagency securitization and GSE acquisitions (which were available), a figure of $59.2 billion can be derived. In written comments provided to HUD in early 1999, in contrast, Fannie Mae asserted that 1998 multifamily volume was approximately $38-43 billion. In a meeting with HUD staff, Freddie Mac staff provided an estimate of $40-50 billion. Given the uncertainty regarding 1998 origination activity as of the time of this writing, an adjusted figure of $50 billion may be used on an interim basis until further data becomes available.[19]

3. *Projections for 2000 and Beyond*

Considerations influencing future multifamily origination volume include interest rates, property values, and construction starts. Taking all of these factors into consideration, Fannie Mae forecasts of a 10 percent decrease in 1999 relative to 1998 followed by a 2 percent increase in 2000, included in comments provided to the Department, appear reasonable. [20]

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[19] The Urban Institute model predicts $50 billion for the *entire* 1998 multifamily market, including FHA.

[20] Multifamily interest rates increased in September, 1998 as part of a broader "flight to quality" precipitated by volatility in the world economy. While CMBS spreads were the most strongly affected, agency yield spreads also widened during this period. Further detail is provided in Appendix A. "Expectations may have begun to adjust downward even before the recent troubles in the financial markets" according to "The Multifamily Outlook," Jack Goodman, *Urban Land*, November 1998. p. 92. The CMBS market, of which approximately 25 percent is multifamily, is expected by Morgan Stanley to fall from approximately $80 billion in 1998 to $50 billion in 1999 ("A Cloudy '99 for Subprime Lenders, HELs, CMBS," *Mortgage Backed Securities Letter*, January 4, 1999, p. 1). Donaldson , Lufkin & Jenrette anticipates a decrease from $76 billion to $55 billion (March Hochstein, "Commercial Mortgage Bond Issuance Seen Falling," *American Banker*, December 22, 1998, p. 2). To the extent that multifamily origination volume falls in late 1999 associated with concerns regarding Y2K, the contraction in lending volume from 1998 to 1999 could exceed 10 percent. This possibility is taken into consideration here by

If these projections regarding 1999 and year 2000 origination volume are applied to the Department's of $50 billion estimate of 1998 conventional multifamily origination volume, a projection of $46 billion in year 2000 volume can be derived. Alternatively, if 1998 origination volume is in the $38-43 billion range indicated by Fannie Mae, year 2000 conventional origination volume is expected to lie in the $35-$40 billion range. On the other hand, if 1998 origination volume reached $59 billion, the high end of the estimates discussed previously, year 2000 volume could be as high as $54 billion. Turning to the Urban Institute statistical model discussed earlier, total multifamily originations (including FHA) are projected to reach $54 billion in 2000. After removing $2.9 billion in anticipated FHA-insured originations, this leaves projected conventional volume of $51.1 billion.[21]

Taking all of these estimates into consideration, year 2000 multifamily conventional origination volume is likely to lie in the $40-$52 billion range, with an expected "baseline" value of $46 billion.

Average Loan Amounts. Another issue regarding the multifamily mortgage market concerns average loan amount per unit. This ratio is used in converting year-2000 estimates of conventional multifamily lending volume as measured in dollars into a number of units financed. For this purpose, the ratio of total UPB to total units financed, rather than UPB on a "typical" multifamily unit, is the appropriate measure.

HUD anticipates overall conventional multifamily loan amount per unit of $30,000 in the year 2000 based on analysis of newly-originated GSE and non-GSE multifamily mortgage loans. GSE figures on loan amount per unit can be obtained from GSE loan-level data provided to HUD. Non-GSE loan amount per unit figures are from HUD's analysis of recently-originated conventional non-GSE multifamily mortgages.[22] Combining these sources, and calculating a weighted average based on relative market shares yields an estimated UPB per unit of $25,167 in 1997 and $29,506 in 1998. The increase from 1997-1998 appears to be largely due to a significant increase in appraised value per unit, which may be associated with the relatively low interest rates prevailing in 1998.[23] Because interest rates are not expected to fall significantly from 1998 levels at the time of this writing, it appears reasonable to project that year-2000 conventional multifamily average loan amount will continue at the 1998 level of $30,000 under HUD's baseline

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providing a range of estimates for year 2000 origination volume as discussed below.

[21] Projected year 2000 FHA volume was calculated as the mean of 1997 and 1998 volume pursuant to discussions with staff in HUD's Housing Finance Analysis Division.

[22] Sample sizes on conventional non-GSE multifamily loans are 1,047 and 535 in 1997 and 1998, respectively.

[23] Commercial property values are inversely related to interest rates because a reduction in interest rates reduces the rate at which income streams are discounted.

projection of $46 billion for the year 2000. Under the lower projection of $40 billion, an average loan amount of $29,000 is assumed.

D. Single-Family Owner and Rental Mortgage Market Shares

1. Available Data

As explained later, HUD's market model will also use projections of mortgage originations on single-family (1-4 unit) properties. Current data combine mortgage originations for the three different types of single-family properties: owner-occupied, one-unit properties (SF-O); 2-4 unit rental properties (SF 2-4); and 1-4 unit rental properties owned by investors (SF-Investor). The fact that the goal percentages are much higher for the two rental categories argues strongly for disaggregating single-family mortgage originations by property type. This section discusses available data for estimating the relative size of the single-family rental mortgage market.

The RFS and HMDA are the two data sources for estimating the relative size of the single-family rental market. The RFS, based on mortgages originated between 1987 and 1991, provides mortgage origination estimates for each of the three single-family property types. HMDA divides newly-originated single-family mortgages into two property types:[24]

(1) Owner-occupied originations, which include both SF-O and SF 2-4.

(2) Non-owner-occupied mortgage originations, which include SF Investor.

The percentage distributions of mortgages from these data sources are as follows:

	1997 HMDA			1987-91[25]	HUD's 1995
	Purchase	Refinance	All	RFS	Rule
SF-O…………....	90.6%	92.6%	91.5%	80.4%	88.0%
SF 2-4………….	(included above)			2.3%	2.0%
SF Investor…….	9.4%	7.4%	8.5%	17.3%	10.0%
Total…………..	100.0%	100.0%	100.0%	100.0%	100.0%

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[24] This ignores the HMDA loans with "non-applicable" for owner type.

[25] The year-by-year distributions from the RFS were not too different from the average distribution given in the text.

Because HMDA combines the first two categories, the comparisons between the data bases must necessarily focus on the SF investor category. According to HMDA, investors account for 9.4 percent of home purchase loans and 7.4 percent of refinance loans.[26] The RFS estimate of 17.3 percent is over twice HMDA's overall estimate of 8.5 percent. In its 1995 rule, HUD projected a 10.0 percent share for the SF investor group, only 1.5 percentage points higher than the 1997 HMDA figure. As discussed below, HUD's projection was probably quite conservative; however, given the uncertainty around the data, it is difficult to draw firm conclusions about the size of the single-family rental market.

2. Analysis of Investor Market Share

Blackley and Follain. During the 1995 rule-making, HUD asked the Urban Institute to analyze the differences between the RFS and HMDA investor shares and determine which was the more reasonable. The Urban Institute's analysis of this issue is contained in reports by Dixie Blackley and James Follain.[27] Blackley and Follain provide reasons why HMDA should be adjusted upward as well as reasons why the RFS should be adjusted downward. One reason for adjusting HMDA's investor share upward is that the investor share of mortgage originations as reported by HMDA is much lower than the investor share of the single-family rental stock as reported by the AHS.

Blackley and Follain also noted that the fact that investor loans prepay at a faster rate than other single-family loans suggests that the investor share of single-family mortgage originations should be higher not lower than the investor share of the single-family housing stock. Blackley and Follain (1995) conclude that "this brings into question the investor share based upon HMDA data" (page 15).

The RFS's investor share should be adjusted downward in part because the RFS assigns all vacant properties to the rental group, but some of these are likely intended for the owner market, especially among one-unit properties. Blackley and Follain's analysis of this issue suggests lowering the investor share from 17.3 percent to about 14-15 percent.

Finally, Blackley and Follain note that a conservative estimate of the SF investor share is advisable because of the difficulty of measuring the magnitudes of the various effects that they analyzed.[28] In their 1996 paper, they conclude that 12 percent is a reasonable estimate of the investor share of single-family mortgage originations.[29] Blackley and Follain caution that uncertainty exists around this estimate because of inadequate data.

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[26] The single-family owner percentages based on 1998 HMDA data are as follows: Purchase (91.0 percent), Refinance (94.5 percent), and All (93.2 percent). The higher "All" percent reflects the higher share of refinance mortgages during 1998.

[27] Dixie M. Blackley and James R. Follain, "A Critique of the Methodology Used to Determine Affordable Housing Goals for the Government Sponsored Housing Enterprises," unpublished report prepared for Office of Policy Development and Research, Department of Housing and Urban Development, October 1995; and "HUD's Market Share Methodology and its Housing Goals for the Government Sponsored Enterprises," unpublished paper, March 1996.

3. Single-Family Market in Terms of Unit Shares

The market share estimates for the housing goals need to be expressed as percentages of units rather than as percentages of mortgages. Thus, it is necessary to compare unit-based distributions of the single-family mortgage market under the alternative estimates discussed so far. The mortgage-based distributions given above in Section D.1 were adjusted in two ways. First, the owner-occupied HMDA data were disaggregated between SF-O and SF 2-4 mortgages based on RFS data, which show that SF 2-4 mortgages represent approximately 2 percent of all single-family mortgages. Second, the resulting mortgage-based distributions were shifted to unit-based distributions by applying the unit-per-mortgage assumptions in HUD's proposed rule. HUD assumed 2.25 units per SF 2-4 property and 1.35 units per SF investor property; both figures were derived from the 1991 RFS.[30]

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[28] For example, they note that discussions with some lenders suggest that because of higher mortgage rates on investor properties, some HMDA-reported owner-occupants may in fact be "hidden" investors; however, it would be difficult to quantify this effect. They also note that some properties may switch from owner to renter properties soon after the mortgage is originated. While such loans would be classified by HMDA as owner-occupied at the time of mortgage origination, they could be classified by the RFS as rental mortgages. Again, it would be difficult to quantify this effect given available data.

[29] Blackley and Follain (1996), p. 20.

[30] The unit-per-mortgage data from the 1991 RFS match closely the GSE purchase data for 1996 and 1997. Blackley and Follain show that an adjustment for vacant investor properties would raise the average units per mortgage to 1.4; however, this increase is so small that it has little effect on the overall market estimates.

	1997 HMDA	1987-91 RFS	HUD's 1995 Rule	Blackley/ Follain Alternative
SF-O……………….	84.8%	73.8%	83.0%	80.6%
SF-2-4 Owner[31]……	1.9%(est.)	2.1%	1.9%	1.9%
SF 2-4 Renter……...	2.4%(est.)	2.7%	2.4%	2.3%
SF Investor………...	10.9%	21.4%	12.7%	15.2%
Total……………….	100.0%	100.0%	100.0%	100.0%
SF-Rental………….	13.3%	24.1%	15.1%	17.5%

Three points should be made about these data. **First,** notice that the "SF-Rental" row highlights the share of the single-family mortgage market accounted for by all rental units.

Second, notice that the rental categories represent a larger share of the unit-based market than they did of the mortgage-based market reported earlier. This, of course, follows directly from applying the loan-per-unit expansion factors.

Third, notice that the rental share under HMDA's unit-based distribution is again about one-half of the rental share under the RFS's distribution. The rental share in HUD's 1995 rule is slightly larger than that reported by HMDA. The rental share in the "Blackley-Follain" alternative is slightly above that in HUD's 1995 Rule.

4. Conclusions

This section has reviewed data and analyses related to determining the rental share of the single-family mortgage market. There are two main conclusions:

(1) While there is uncertainty concerning the relative size of this market, the projections made by HUD appear reasonable and, in fact, are below the estimate provided by Blackley and Follain.

(2) HMDA likely underestimates the single-family rental mortgage market. Thus, this part of the HMDA data are not considered reliable enough to use in computing the

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[31] Notice that the SF 2-4 category has been divided into its owner and renter subcomponents. This is easily done based on the assumption of 2.25 units per SF 2-4 mortgage. For each mortgage, one unit represents the owner occupant and 1.25 additional units represent renter occupants. The owner-occupant is included in the SF-O category in this Appendix. This is necessary because different data sources are used to estimate the owner's income and the affordability of the rental units. The income of owners of 2-4 properties are included in the borrower income data reported by HMDA. The AHS and POMS will be used to estimate the affordability of the rental units.

market shares for the housing goals. Various sensitivity analyses of the market shares for single-family rental properties are conducted in Sections F, G, and H. These analyses will show the effects on the overall market estimates of the different projections about the size of the single-family rental market.

E. HUD's Market Share Model

This section integrates findings from the previous two sections about the size of the multifamily mortgage market and the relative distribution of single-family owner and rental mortgages into a single model of the mortgage market. The section provides the basic equations for HUD's market share model and identifies the remaining parameters that must be estimated.

The output of this section is a unit-based distribution for the four property types discussed in Section B.[32] Sections F-H will apply goal percentages to this property distribution in order to determine the size of the mortgage market for each of the three housing goals.

1. Basic Equations for Determining Units Financed in the Mortgage Market

The model first estimates the number of dwelling units financed by conventional conforming mortgage originations for each of the four property types. It then determines each property type's share of the total number of dwelling units financed.

a. Single-Family Units

This section estimates the number of single-family units that will be financed in the conventional conforming market, where single-family units (SF-UNITS) are defined as:

SF-UNITS = SF-O + SF 2-4 + SF-INVESTOR

First, the dollar volume of conventional conforming single-family mortgages (CCSFM\$) is derived as follows:

(1) CCSFM\$ = CONF% * CONV% * SFORIG\$

where

CONV% = conforming mortgage originations as a percent (measured in dollars) of conventional single-family originations; estimated to be 87%.[33]

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[32] The property distribution reported in Section A is an example of the output of the market share model. Thus, this section completes Step 1 of the three-step procedure outlined in Section A.

[33] From MBA volume estimates, the conventional share of the 1-4 family market was between 86 and 88 percent of

CONF% = conventional mortgage originations as a percent of total mortgage originations; forecasted to 78% by industry and GSEs.[34]

SFORIG\$ = dollar volume of single-family one-to-four unit mortgages; \$1,100 billion is used here as a starting assumption to reflect market conditions during the years 2000-2003.[35] Alternative assumptions will be examined later.[36]

Substituting these values into (1) yields an estimate for the conventional confroming market (CCSFM\$) of \$746 billion.

Second, the number of conventional conforming single-family mortgages (CCSFM#) is derived as follows:

(2) CCSFM# = CCSFM\$/SFLOAN\$

where

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the market from 1993 to 1998, with a one-time low of 81 percent in 1994. Calculated from "1-4 Family Mortgage Origination Volume" tables in *Mortgage Finance Review*, Vol. 6, No. 4, p. 7, and Vol. 7, No. 1, p. 7, and from "MBA Mortgage Finance Forecast," September 1999, at www.mbaa.org/marketkdata/forecasts/mffore0999.html.

[34] Data provided by Fannie Mae show that conforming loans have been about 78 percent of total conventional loans over the past few years.

[35] Single-family mortgage originations of \$1,100 billion is \$370 billion less than the record setting \$1,470 billion in 1998 and \$266 billion higher than the \$834 billion in 1997. As discussed later, single-family originations could differ from \$1,100 billion during the 2000-2003 period that the goals will be in effect. As recent experience shows, market projections often change. For example, \$1,100 billion is similar to year-2000 projections by the Mortgage Bankers Association made in June, 1999. (See *Mortgage Finance Review*, Vol. 7, No. 2, "Mortgage Finance Forecasts," p. 2.) However, more recently, MBA estimates for year 2000 volume have dropped to \$952 billion (see MBA Mortgage Finance Forecast, September 1999) . Section F will report the effects on the market estimates of alternative estimates of single-family mortgage originations. As also explained later, the important concept for deriving the goal-qualifying market shares is the relative importance of single-family versus multifamily mortgage originations (the "mix effect") rather than the total dollar volume of single-family originations considered in isolation.

[36] The model also requires an estimated refinance rate because purchase and refinance loans have different shares of goals-qualifying units. Over the past year, the MBA has estimated the year 2000 refinance rate to be 20, 30, and 38 percent for the total market (expressed in dollar terms), with 20 percent the latest estimate. The model uses a refinance rate of 40 percent for conforming conventional loans, which is consistent with the MBA's 30 percent estimate, since refinance rates are higher for the number of conventional conforming loans than for the total market expressed in dollar terms. The 40 percent refinance assumption (compared with the recent, lower MBA projections) results in conservative estimates of goals-qualifying units in the market, since the low-mod share of refinance units is lower than the low-mod share of purchase units. Sensitivity analyses for alternative refinance rates are presented in Sections F-H.

SFLOAN$ = the average conventional conforming mortgage amount for single-family properties; estimated to be $100,000.[37]

Substituting this value into (2) yields an estimate of 7.46 million mortgages.

Third, the total number of single-family mortgages is divided among the three single-family property types. Using the 88/2/10 percentage distribution for single-family mortgages (see Section C), the following results are obtained:

(3a) SF-OM# = .88 * CCSFM# = number of owner-occupied, one-unit mortgages = 6.56 million.

(3b) SF-2-4M# = .02 * CCSFM# = number of owner-occupied, two-to-four unit mortgages = .15 million.

(3c) SF-INVM# = .10 * CCSFM# = number of one-to-four unit investor mortgages = .75 million.

Fourth, the number of dwelling units financed for the three single-family property types is derived as follows:

(4a) SF-O = SF-OM# + SF-2-4M# = number of owner-occupied dwelling units financed = 6.72 million.

(4b) SF 2-4 = 1.25 * SF-2-4M# = number of rental units in 2-4 properties where a owner occupies one of the units = .18 million.[38]

(4c) SF-INVESTOR= 1.35 * SF-INVM# = number of single-family investor dwelling units financed = 1.01 million.

Summing equations 4a-4c gives 7.91 million for the projected number of newly-mortgaged single-family units (SF-UNITS).

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[37] The average 1997 loan amount is estimated at $92,844 for owner occupied units using 1997 HMDA metro average loan amounts for purchase and refinance loans, and then weighting by an assumed 40 percent refinance rate. A small adjustment is made to this figure to account for a small number of two-to-four and investor properties (see Section C above). This produces an average loan size of $91,544 for 1997, which is then inflated 3 percent a year for three years to arrive at an estimated $100,000 average loan size for 2000.

[38] Based on the RFS, there is an average of 2.25 housing units per mortgage for 2-4 properties. 1.25 is used here because one (i.e., the owner occupant) of the 2.25 units is allocated to the SF-O category. The RFS is also the source of the 1.35 used in (4c).

b. Multifamily Units

The number of dwelling units financed by conventional conforming multifamily originations is:

(5) MF-UNITS = CCMFM$/MFLOAN$

where

CCMFM$ = conventional conforming mortgage originations, which are assumed to be $46 billion as a starting point; as discussed in Section C, alternative estimates of the multifamily market will be included in the analysis.

MFLOAN$ = average loan amount per housing unit in multifamily properties = $30,000.[39]

Substituting these values into (5) yields a projection for MF-UNITS of 1.53 million.

c. Total Units Financed

The total number of dwelling units financed by the conventional conforming mortgage market (TOTAL) can be expressed in three useful ways:

(6a) TOTAL = SF-UNITS + MF-UNITS = 9.44 million
(6b) TOTAL = SF-O + SF 2-4 + SF-INVESTOR + MF-UNITS
(6c) TOTAL = SF-O + SF-RENTAL + MF-UNITS

where SF-RENTAL equals SF-2-4 plus SF-INVESTOR.

2. Dwelling Unit Distributions by Property Type

The next step is to express the number of dwelling units financed for each property type as a percentage of the total number of units financed by conventional conforming mortgage originations.[40]

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[39] See Section C for a discussion of average multifamily loan amounts.

[40] The share of the mortgage market accounted for by owner occupants is (SF-O)/TOTAL; the share of the market accounted for by all single-family rental units is SF-RENTAL/TOTAL; and so on.

The projections used above in equations (1)-(6) produce the following distributions of financed units by property type:

	% Share		%Share
SF-O……………..	71.1%		
SF 2-4……………	2.0%	SF-O…………….	71.1%[41]
SF INVESTOR….	10.7%	SF-RENTER……	12.7%
MF-UNITS………	16.2%	MF-UNITS……..	16.2%
Total……………..	100.0%		100.0%

Sections C and D discussed alternative projections for the volume of the multifamily originations and the investor share of single-family mortgages. The analysis in this appendix will consider three multifamily origination levels -- $40 billion, $46 billion, and $52 billion -- and three projections about the investor share of single-family mortgages -- 8 percent, 10 percent, and 12 percent. The middle values ($46 billion and 10 percent) are used in the above calculations and will be considered the "baseline" projections throughout the Appendix. However, HUD recognizes the uncertainty of projecting origination volume in markets such as multifamily; therefore, the analysis in Sections G - H will also consider market assumptions other than the baseline assumptions.

Table D.3 reports the unit-based distributions produced by HUD's market share model for different combinations of these projections. The effects of the different projections can best be seen by examining the owner category which varies by 7 percentage points, from a low of 67.2 percent (multifamily originations of $52 billion coupled with an investor mortgage share of 12 percent) to a high of 74.3 percent (multifamily originations of $40 billion coupled with an investor mortgage share of 8 percent). The owner share under the baseline projections ($46 billion and 10 percent) is 71.1 percent, which is approximately the same as the owner share (71.0 percent) in the baseline projection of HUD's 1995 Rule.

INSERT TABLE D.3 HERE

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[41] Owners of 2-4 properties account for 1.6 percentage points of the 71.1 percent for SF-O.

Comparison with the RFS. The Residential Finance Survey is the only mortgage data source that provides unit-based property distributions similar to those reported in Table D.3. Based on RFS data for 1987 to 1991, HUD estimated that, of total dwelling units in properties financed by recently acquired conventional conforming mortgages, 56.5 percent were owner-occupied units, 17.9 percent were single-family rental units, and 25.6 percent were multifamily rental units.[42] Thus, the RFS presents a much lower owner share than does HUD's model. This difference is due mainly to the relatively high level of multifamily originations (relative to single-family originations) during the mid- to late-1980s, which is the period covered by the RFS.[43]

3. Sensitivity of Property Distributions to Changes in Other Model Parameters

The multifamily and single-family rental markets are not the only areas where some degree of uncertainty exists about their magnitudes. HUD examined the sensitivity of the property distributions given in Table D.3 to changes in several other model parameters. Most of these sensitivity analyses will be reported when discussing the market estimates for each of the housing goals. Suffice it to say here that any changes that reduce the owner category such as reducing the overall level of single-family origination activity or raising the per unit loan amounts for single-family mortgages tend to increase the market estimates for each of the housing goals. This occurs because the goal percentages for owner mortgages are lower than those for rental housing.

F. Size of the Conventional Conforming Mortgage Market Serving Low- and Moderate-Income Families

This section estimates the size of the low- and moderate-income market by applying low- and moderate-income percentages to the property shares given in Table D.3. This section essentially accomplishes Steps 2 and 3 of the three-step procedure discussed in Section B.

Technical issues and data adjustments related to the low- and moderate-income percentages for owners and renters are discussed in the first two subsections. Then, estimates of the size of the low- and moderate-income market are presented along with several sensitivity analyses. Based on these analyses, HUD concludes that 50-55 percent is a reasonable estimate of the mortgage market's low- and moderate-income share for the years (2000-2003) which the new goals will be in effect.

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[42] Restricting the RFS analysis to 1991 resulted in only minor changes to the market shares.

[43] Between 1987 and 1991, annual multifamily mortgage originations averaged $32 billion, representing 7.2 percent of conventional mortgage originations. In 1997, conventional multifamily originations stood at $40.7 billion but because of the increase in single-family originations since the late 1980s, the multifamily share of total originations had dropped to 4.7 percent.

This rule proposes that the Low- and Moderate-Income Goal be established at 48 percent of eligible units financed in calendar year 2000, and 50 percent of eligible units financed in each of calendar years 2001-2003.

1. Low- and Moderate-Income Percentage for Single-Family Owner Mortgages

a. HMDA Data

The most important determinant of the low- and moderate-income share of the mortgage market is the income distribution of single-family borrowers. HMDA reports annual income data for families who live in metropolitan areas and purchase a home or refinance their existing mortgage.[44] Table D.4 gives the percentage of mortgages originated for low- and moderate-income families for the years 1992-1998. Data for home purchase and refinance loans are presented separately; the discussion will focus on home purchase loans because they typically account for the majority of all single-family owner mortgages. For each year, a low- and moderate-income percentage is also reported for the conforming market without loans originated by lenders that primarily originate manufactured home loans (discussed below).

INSERT TABLE D.4 HERE

Table D.4 also reports similar data for very-low-income families (that is, families with incomes less than 60 percent of area median income). As discussed in Section H, very-low-income families are the major component of the special affordable mortgage market.

Two trends in the income data should be mentioned -- one related to the market's funding of low- and moderate-income families since the 1995 Rule was written and the other related to the different borrower income distributions for refinance and home purchase mortgages.

*Low-Mod Market Share Since 1995***.** As discussed in the 1995 Rule, the percentage of borrowers with less than area median income increased significantly between 1992 and 1994. Mortgages to low-mod borrowers increased from 34.4 percent of the home purchase market in 1992 to 41.8 percent of that market in 1994. Over the next four years (1995-98), the low-mod share of the home purchase market remained at a high level, averaging about 42 percent, or almost 40 percent if manufactured loans are excluded from the market totals. The share of the market accounted for by very-low-income borrowers followed a similar trend, increasing from 8.7 percent in 1992 to 11.9 percent in 1994 and then remaining at a high level through 1998. As discussed in Appendix A, this jump in low-income lending has been attributed to several factors, including: a favorable economy accompanied by historically low interest rates; the entry into the housing market of more diverse groups including non-traditional households (e.g., singles), immigrants, and minority families seeking homeownership for the first time; and, affordable lending initiatives and outreach efforts on the part of the mortgage industry. Essentially, the affordable lending market is much stronger than it appeared to be when HUD wrote the 1995 Rule. At that time, there had been two years (1993 and 1994) of increasing affordable lending for lower-income borrowers. The four additional years of data for 1995-98 show more clearly the underlying strength of this market. While lending patterns could change with sharp changes in the economy, the fact that there has been six years (1993-98) of strong affordable lending suggests the market has changed in fundamental ways from the mortgage market of the early 1990s.

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[44] As noted earlier, HMDA data are expressed in terms of number of loans rather than number of units. In addition, HMDA data do not distinguish between owner-occupied one-unit properties and owner-occupied 2-4 properties. This is not a particular problem for this section's analysis of owner incomes.

*Refinance Mortgages***.** HUD's model for determining the size of the low- and moderate-income market assumes that low-mod borrowers will represent a smaller share of refinance mortgages than they do of home purchase mortgages. However, as shown in Table D.4, the income characteristics of borrowers refinancing mortgages seem to depend on the overall level of refinancing in the market. During the refinancing wave of 1992 and 1993, refinancing borrowers had much higher incomes than borrowers purchasing homes. For example, during 1993 low- and moderate-income borrowers accounted for 29.3 percent of refinance mortgages, compared to 38.9 percent of home purchase borrowers. In 1998, another period of high refinance activity, low- and moderate-income borrowers accounted for 39.7 percent of refinance loans, versus 43.0 percent of home purchase loans. But during the years (1995-97) characterized by lower levels of refinancing activity, the low-mod share for refinance mortgages was about the same as that for home purchase mortgages. In 1997, the low-mod share of refinance mortgages (45.0) was even higher than the low-mod share of home loans (42.5 percent).

The projection model assumes that refinancing will be 40 percent of the single-family mortgage market. However given the volatility of refinance rates from year to year, it is important to conduct sensitivity tests using different refinance rates.

b. Manufactured Housing Loans

The mortgage market definition in this appendix includes manufactured housing loans, which have become an important source of affordable housing and which the GSEs have started to purchase. Because the market estimates in HUD’s 1995 Rule were adjusted to exclude manufactured housing loans, several tables in this appendix will show how the goals-qualifying shares of the single-family-owner market change depending on the treatment of manufactured housing loans. As explained later, the effect of manufactured housing on HUD’s metropolitan area market estimate for each of the three housing goals is a modest one percentage point.

As discussed in Appendix A, the manufactured housing market has been increasing rapidly over the past few years, as sales volume has increased from $4.7 billion in 1991 to $16.3 billion in 1998. The affordability of manufactured homes for lower-income families is demonstrated by their average price of $41,000 in 1997, a fraction of the $176,000 for new homes and $154,000 for existing homes. Many households live in manufactured housing because they simply cannot afford site-built homes, for which the construction costs per square foot are much higher.

Data on the incomes of purchasers of manufactured homes is not readily available, but HMDA data on home loans made by 21 lenders that primarily originate manufactured home loans, discussed below, indicate that:[45]

- A very high percentage of these loans--76 percent in 1998--would qualify for the Low- and Moderate-Income Goal,

- A substantial percentage of these loans--42 percent in 1998--would qualify for the Special Affordable Goal, and

- Almost half of these loans--47 percent in 1998--would qualify for the Underserved Areas Goal.

Thus an enhanced presence in this market by the GSEs would benefit many lower-income families. It would also contribute to their presence in underserved rural areas, especially in the South.

To date the GSEs have played a minimal role in the manufactured home loan market, but both enterprises have expressed an interest in expanding their roles.[46] Except in structured transactions, the GSEs do not purchase manufactured housing loans under their seller/servicer guidelines unless they are real estate loans. That is, such homes must have a permanent foundation and the site must be either purchased as part of the transaction or already owned by the borrower. Industry trends toward more homes on private lots and on concrete foundations suggest that the percentage of manufactured homes that would qualify as real estate loans under GSE guidelines has grown in the past few years. There has also been a major shift from single-section homes to multisection homes, which contain two or three units which are joined together on site.

Although manufactured home loans cannot be identified in the HMDA data, HUD staff have identified 21 lenders that primarily originate manufactured home loans and likely account for most of these loans in the HMDA data for metropolitan areas. In Table D.4, the data presented under "Conforming Market Without Manufactured Home Loans" excludes loans originated by manufactured housing lenders, as well as loans less than $15,000. The lenders include companies such as Green Tree Financial; Vanderbilt Mortgage; Deutsche Financial Capital; Oakwood Acceptance Corporation; Allied Acceptance Corporation; Belgravia Financial Services; Ford Consumer Finance Company; and the CIT Group.[47]

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[45] Since most HMDA data are for loans in metropolitan areas and a substantial share of manufactured homes are located outside metropolitan areas, HMDA data may not accurately state the goals-qualifying shares for loans on manufactured homes in all areas.

[46] Freddie Mac, the Manufactured Housing Institute and the Low Income Housing Fund have formed an alliance to utilize manufactured housing along with permanent financing and secondary market involvement to bring affordable, attractive housing to underserved, low- and moderate-income urban neighborhoods. *Origination News*. (December 1998), p.18.

c. American Housing Survey Data

The American Housing Survey also reports borrower income data similar to that reported in Table D.3.[48] The low- and moderate-income market shares from the AHS are as follows:

1985	27.0%
1987	32.0%
1989	34.0%
1991	36.0%
1993	33.0% (38.7% home purchase and 28.6% refinance)
1995	40.0% (38.5% home purchase and 43.2% refinance)

According to the AHS, 38.5 percent of those families surveyed during 1995 who had recently purchased their homes, and who obtained conventional mortgages below the conforming loan limit, had incomes below the area median; this compares with 39.3 percent based on 1995 HMDA data that excludes manufactured homes (as the AHS data do).

A longer-term perspective of the mortgage market can be gained by examining income data from the last six American Housing Surveys. During the earlier period between 1987 and 1991, the low- and moderate-income share increased from 27 percent to 36 percent, and averaged 32.3 percent. After remaining at a relatively low percentage (33.0 percent) during the heavy refinance year of 1993, the low- and moderate-income share rebounded to 40.0 percent in 1995. As noted earlier, this is about the same market share reported by HMDA data for 1995.

Since HMDA data cover over 80 percent of the single-family-owner mortgage market, and the American Housing Survey represents only a very small sample of this market, the HMDA data will be the major source of information on the characteristics of single-family property owners receiving mortgage financing. As discussed next, the American Housing Survey and the Property Owners and Managers Survey will be relied on for information about the rents and affordability of single-family and multifamily rental properties.

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[47] Randall M. Scheessele had developed a list of nine manufactured home lenders that has been used by several researchers in analyses of HMDA data prior to 1997. Scheessele recently developed the expanded list of 21 manufactured home loan lenders in his analysis of 1998 HMDA data. (See Randall M. Scheessele, *1998 HMDA Highlights*, *op. cit.*) In these appendices, the number of manufactured home loans deducted from the market totals for the years 1993 to 1997 are the same as reported by Scheessele (1999) in his Table D.2b.

[48] See Appendix D of the 1995 Rule for a detailed discussion of the AHS data and improvements that have been made to the survey to better measure borrower incomes and rent affordability.

2. Low- and Moderate-Income Percentage for Renter Mortgages

The 1995 Rule relied on the American Housing Survey for a measure of the rent affordability of the single-family rental stock and the multifamily rental stock. As explained below, the AHS provides rent information for the stock of rental properties rather than for the flow of mortgages financing that stock. This section discusses a new survey, the Property Owners and Managers Survey (POMS), that provides information on the flow of mortgages financing rental properties. As discussed below, the AHS and POMS data provide very similar estimates of the low- and moderate-income share of the rental market.

a. American Housing Survey Data

The American Housing Survey does not include data on mortgages for rental properties; rather, it includes data on the characteristics of the existing rental housing stock and recently completed rental properties. Current data on the income of prospective or actual tenants has also not been readily available for rental properties. Where such income information is not available, FHEFSSA provides that the rent of a unit can be used to determine the affordability of that unit and whether it qualifies for the Low- and Moderate-Income Goal. A unit qualifies for the Low- and Moderate-Income Goal if the rent does not exceed 30 percent of the local area median income (with appropriate adjustments for family size as measured by the number of bedrooms). Thus, the GSEs' performance under the housing goals is measured in terms of the affordability of the rental dwelling units that are financed by mortgages that the GSEs purchase; the income of the occupants of these rental units is not considered in the calculation of goal performance. For this reason, it is appropriate to base estimates of market size on rent affordability data rather than on renter income data.

A rental unit is considered to be "affordable" to low- and moderate-income families, and thus qualifies for the Low- and Moderate-Income Goal, if that unit's rent is equal to or less than 30 percent of area median income. Table D.5 presents AHS data on the affordability of the rental housing stock for the survey years between 1985 and 1995. The 1995 AHS shows that for 1-4 unit unsubsidized single-family rental properties, 97 percent of all units and of units constructed in the preceding three years had gross rent (contract rent plus the cost of all utilities) less than or equal to 30 percent of area median income. For multifamily unsubsidized rental properties, the corresponding figure was 95 percent. The AHS data for 1989, 1991 and 1993 are similar to the 1995 data.

INSERT TABLE D.5 HERE

b. Property Owners and Managers Survey (POMS)

During the 1995 rule-making, concern was expressed about using data on rents from the outstanding rental stock to proxy rents for newly mortgaged rental units.[49] At that time, HUD conducted an analysis of this issue using the Residential Finance Survey and concluded that the existing stock was an adequate proxy for the mortgage flow when rent affordability is defined in terms of less than 30 percent of area median income, which is the affordability definition for the Low- and Moderate-Income Goal. More specifically, that analysis suggested that 85 percent of single-family rental units and 90 percent of multifamily units are reasonable estimates for projecting the percentage of financed units affordable at the low- and moderate-income level.[50] HUD has investigated this issue further using the POMS.

*POMS Methodology***.** The affordability of multifamily and single-family rental housing backing mortgages originated in 1993-1995 was calculated using internal Census Bureau files from the American Housing Survey-National Sample (AHS) from 1995 and the Property Owners and Managers Survey from 1995-1996. The POMS survey was conducted on the same units included in the AHS survey, and provides supplemental information such as the origination year of the mortgage loan, if any, recorded against the property included in the AHS survey. Monthly housing cost data (including rent and utilities), number of bedrooms, and metropolitan area (MSA) location data were obtained from the AHS file.

In cases where units in the AHS were not occupied, the AHS typically provides rents, either by obtaining this information from property owners or through the use of imputation techniques. Estimated monthly housing costs on vacant units were therefore calculated as the sum of AHS rent and utility costs estimated using utility allowances published by HUD as part of its regulation of the GSEs. Observations where neither monthly housing cost nor monthly rent was available were omitted, as were observations where MSA could not be determined. Units with no cash rent and subsidized housing units were also omitted. Because of the shortage of observations with 1995 originations, POMS data on year of mortgage origination were utilized to restrict the sample to properties mortgaged during 1993-1995. POMS weights were then applied to estimate population statistics. Affordability calculations were made using 1993-95 area median incomes calculated by HUD.

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[49] Some even argued that data based on the recently completed stock would be a better proxy for mortgage flows. In the case of the Low- and Moderate-Income Goal, there is not a large difference between the affordability percentages for the recently constructed stock and those for the outstanding stock of rental properties. But this is not the case when affordability is defined at the very-low-income level. As shown in Table D.5, the recently completed stock houses substantially fewer very-low-income renters than does the existing stock. Because this issue is important for the Special Affordable Goal, it will be further analyzed in Section H when that goal is considered.

[50] In 1997, 75.6 percent of GSE purchases of single-family investor rental units and over 90 percent of their purchases of multifamily units qualified under the Low- and Moderate-Income Goal.

POMS Results. The rent affordability estimates from POMS of the affordability of newly-mortgaged rental properties are quite consistent with the AHS data reported in Table D.5 on the affordability of the rental stock. Ninety-six (96) percent of single-family rental properties with new mortgages between 1993 and 1995 were affordable to low- and moderate-income families, and 56 percent were affordable to very-low-income families. The corresponding percentages for newly-mortgaged multifamily properties are 96 percent and 51 percent, respectively. Thus, these percentages for newly-mortgaged properties from the POMS are similar to those from the AHS for the rental stock. As discussed in the next section, the baseline projection from HUD's market share model assumes that 90 percent of newly-mortgaged, single-family rental and multifamily units are affordable to low- and moderate-income families.

3. *Size of the Low- and Moderate-Income Mortgage Market*

This section provides estimates of the size of the low- and moderate-income mortgage market. Subsection 3.a provides some necessary background by comparing HUD's estimate made during the 1995 rule-making process with actual experience between 1995 and 1998. Subsection 3.b presents new estimates of the low-mod market while Subsection 3.c reports the sensitivity of the new estimates to changes in assumptions about economic and mortgage market conditions.

a. Comparison of Market Estimates with Actual Performance

The market share estimates that HUD made during 1995 can now be compared with actual market shares for 1995 to 1997. Projections for 1998 will be discussed in the next section. This discussion of the accuracy of HUD's past market estimates considers all three housing goals, since the explanations for the differences between the estimated and actual market shares are common across the three goals. HUD estimated the market for each housing goal for 1995-97, and obtained the following results:[51]

	Low-Mod	Special Affordable	Underserved Areas[52]

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[51] The following goals-qualifying shares for 1995-97 are, of course, estimates themselves; even though information is available from HMDA and other data sources for most of the important model parameters, there are some areas where information is limited, which leads to a range of estimates rather than precise point estimates. For example, HUD had two sets of average per-unit loan amounts for multifamily properties. HUD's "higher" estimates ($24,698 in 1995, $25,268 in 1996, and $27,279 in 1997) are used in the text. HUD's "lower" estimates ($22,310 in 1995, $24,047 in 1996, and $25,167 in 1997) provided slightly higher market shares. For example, the 1997 figures under the "lower" estimates of per-unit multifamily loan amounts were as follows: Low- and Moderate-Income Goal (58.4 percent); Special Affordable Goal (29.5 percent; and Underserved Areas Goal (33.9 percent). The "lower" per-unit loan amounts result in a larger number of multifamily units in HUD's model, which leads to higher percentages of goals-qualifying loans in the overall market.

[52] The underserved area market shares presented here are based on data for metropolitan areas; as discussed in the next section, accounting for non-metropolitan areas would likely raise the overall market share for this goal by as much as a percentage point.

1995……………….	56.8%	28.4%	32.9%
1996……………….	57.2%	28.5%	32.7%
1997……………….	57.8%	29.0%	33.7%

HUD market estimates in 1995 were 48-52 percent for the Low- and Moderate-Income Goal, 20-23 percent for the Special Affordable Goal, and 25-28 percent for the Underserved Areas Goal. Thus, even the upper bound figures for the market share ranges in the 1995 Rule proved to be low—for the low-mod estimate, 52 percent versus 57-58 percent; for the special affordable estimate, 23 versus 28-29 percent, and for the underserved areas estimate, 28 percent versus 33 percent.

There are several factors explaining HUD's underestimate of the goals-qualifying market shares. The 1995-97 mortgage markets originated more affordable single-family mortgages than anticipated, mainly due to historically low interest rates and strong economic expansion. In 1997, for instance, almost 44 percent of all (home purchase and refinance) single-family-owner mortgages qualified for the Low- and Moderate-Income Goal, 16 percent qualified for the Special Affordable Goal, and 28 percent qualified for the Underserved Areas Goal.[53] HUD's 1995 estimates anticipated smaller shares of new mortgages being originated for low-income families and in their neighborhoods.[54] [55]

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[53] The 1995-97 goals-qualifying percentages for single-family mortgages are based on HMDA data for all (both home purchase and refinance) mortgages. Thus, the implicit refinance rate is that reported by HMDA for conventional conforming mortgages.

[54] HUD had based its earlier projections heavily on market trends between 1992 and 1994. During this period, low- and moderate-income borrowers accounted for only 38 percent of home purchase loans, which is consistent with an overall market share for the Low- and Moderate-Income Goal of 52 percent (see Table D.7 below), which was HUD's upper bound in the 1995 Rule. Based on the 1993 and 1994 mortgage markets, HUD's earlier estimates also assumed that refinance mortgages would have smaller shares of lower-income borrowers than home purchase loans; the experience during the 1995-1997 period was the reverse, with refinance loans having higher shares of lower-income borrowers than home purchase loans. For example, in 1997, 45 percent of refinancing borrowers had less-than-area-median incomes, compared with 42.5 percent of borrowers purchasing a home.

[55] The 1995-97 estimates also include the effects of small loans (less than $15,000) and manufactured housing loans which increase the market shares for metropolitan areas by approximately one percentage point. For example, assuming a constant mix of owner and rental properties, excluding these loans would reduce the goals-qualifying shares as follows: the Low- and Moderate-Income Goal by 1.4 percentage points, and the Special Affordable Goal and Underserved Areas Goals by one percentage point. However, dropping manufactured housing from the market totals would increase the rental share of the market, which would tend to lower these impact estimates. It should also be mentioned that manufactured housing in non-metropolitan areas is not included in HUD’s analysis due to lack of data; including this segment of the market would tend to increase the goals-qualifying shares of the overall market. Thus, the analyses of manufactured housing reported above and throughout the text pertain only to manufactured housing loans in metropolitan areas, as measured by loans originated by the manufactured housing lenders identified by Scheessele, *op. cit.*

The financing of rental properties during 1995-97 was larger than anticipated. HUD's earlier estimates assumed a rental share of 29 percent, which was lower than the approximately 31 percent rental share for the years 1995-97. The underestimate for rental housing was due to a larger multifamily market ($32 billion for 1995, $37 billion for 1996, and $41 billion for 1997) than anticipated in the 1995 GSE Rule ($30 billion) and to lower per unit multifamily loan amounts than assumed in HUD's earlier model.[56]

B&C Mortgages. As discussed in Appendix A, the market for subprime mortgages has experienced rapid growth over the past 2-3 years. Comprehensive data for measuring the size of this market are not available. However, estimates by various industry observers suggest that the subprime market could have accounted for as much as 15 percent of all mortgages originated during 1997, which would have amounted to approximately $125 billion.[57] In terms of credit risk, this $125 billion includes a wide range of mortgage types. “A-minus” loans, which represented about half of the subprime market in 1997, make up the least risky category. The GSEs are involved in this market -- for instance, Freddie Mac has initiated programs to purchase A-minus loans through its Loan Prospector system. The remaining categories (mainly “B” and “C” loans) experience much higher delinquency rates than A-minus loans.[58]

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[56] The accuracy of the single-family portion of HUD’s model can be tested using HMDA data. The number of single-family loans reported to HMDA for the years 1995 to 1997 can be compared with the corresponding number predicted by HUD’s model. Single-family loans reported to HMDA during 1995 were 79 percent of the number of loans predicted by HUD’s model; comparable percentages for 1996 and 1997 were 83 percent and 82 percent, respectively. Studies of the coverage of HMDA data conclude that HMDA covers approximately 85 percent of the conventional conforming market. (See Randall M. Scheessele, *HMDA Coverage of the Mortgage Market*, *op. cit.*) The fact that the HMDA data account for lower percentages of the single-family loans predicted by HUD’s model suggests that HUD’s model may be slightly overestimating the number of single-family loans during the 1995-97 period. The only caveat to this concerns manufactured housing in non-metropolitan areas. The average loan amount that HUD used in calculating the number of units financed from mortgage origination dollars did not include the effects of manufactured housing in non-metropolitan areas; thus, HUD’s average loan amount is too high, which suggests that single-family-owner mortgages are underestimated. (Similarly, the goals-qualifying percentages in HUD’s model are based on metropolitan area data and therefore do not include the effects of manufactured housing in non-metropolitan areas.)

[57] A 15 percent estimate for 1997 is reported by Michelle C. Hamecs and Michael Benedict, "Mortgage Market Developments", in *Housing Economics,* National Association of Home Builders, April 1998, pages 14-17. Hamecs and Benedict draw their estimate from a survey by *Inside B&C Lending*, an industry publication. A 12 percent estimate is reported in "Subprime Products: Originators Still Say Subprime Is 'Wanted Dead or Alive'" in *Secondary Marketing Executive*, August 1998, 34-38. Forest Pafenberg reports that subprime mortgages accounted for 10 percent of the conventional conforming market in 1997; see his article, "The Changing Face of Mortgage Lending: The Subprime Market", *Real Estate Outlook*, National Association of Realtors, March 1999, pages 6-7. Pafenberg draws his estimate from Inside Mortgage Capital, which used data from the Mortgage Information Corporation. The uncertainty about what these various estimates include should be emphasized; for example, they may include second mortgages and home equity loans as well as first mortgages, which are the focus of this analysis.

[58] Based on information from The Mortgage Information Corporation, Pafenberg reports the following serious delinquency rates (either 90 days past due or in foreclosure) for 1997 by type of subprime loan: 2.97 percent for A-

The effects of excluding B&C mortgages on the estimated market shares for goals-qualifying loans in 1997 can be derived by combining information from various sources. First, the $125 billion estimate for the subprime market was reduced by 15 percent to arrive at an estimate of $106 billion for subprime loans that were less than the conforming loan limit of $214,600 in 1997. This figure was reduced by one-half to arrive at an estimate of $53 billion for the conforming B&C market; with an average loan amount of $68,289 (obtained from HMDA data, as discussed below), the $53 billion represented approximately 776,000 B&C loans originated during 1997 under the conforming loan limit.

HMDA data was used to provide an estimate of the portion of these 776,000 B&C loans that would qualify for each of the housing goals. HMDA data does not identify subprime loans, much less divide them into their A-minus and B&C components. As explained in Appendix A, HUD staff have identified HMDA reporters that primarily originate subprime loans. The goals-qualifying percentages of the loans originated by these subprime lenders in 1997 were as follows: 59.3 percent qualified for the Low- and Moderate-Income Goal, 29.4 percent for the Special Affordable Goal, and 46.1 percent for the Underserved Areas Goal.[59] Applying the goals-qualifying percentages to the estimated B&C market total of 776,000 gives the following estimates of B&C loans that qualified for each of the housing goals in 1997: Low- and Moderate Income (460,000), Special Affordable (228,000), and Underserved Areas (358,000).

Adjusting HUD's model to exclude the B&C market involves subtracting the above four figures for the overall B&C market and for B&C loans that qualify for each of the three housing goals from the corresponding figures estimated by HUD for the total single-family and multifamily market inclusive of B&C loans. HUD's model estimates that 8,220,000 single-family and multifamily units were financed during 1997; of these, 4,751,000 (57.8 percent) qualified for the Low- and Moderate-Income Goal, 2,387,000 (29.0 percent) for the Special Affordable Goal, and 2,767,000 (33.7 percent) for the Underserved Areas Goal. Deducting the B&C market estimates produces the following adjusted market estimates: a total market of 7,444,000, of which 4,291,000 (57.6 percent) qualified for the Low- and Moderate-Income Goal, 2,159,000 (29.0 percent) for the Special Affordable Goal,

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minus; 6.31 percent for B; 9.10 percent for C; and 17.69 percent for D. The D category accounted for only 5 percent of subprime loans. Also see "Subprime Mortgage Delinquencies Inch Higher, Prepayments Slow During Final Months of 1998", *Inside MBS & ABSInside MBS & ABS*, March 12, pages 8-11, where it is reported that fixed-rate A-minus loans have delinquency rates similar to high-LTV (over 95 percent) conventional conforming loans.

[59] These percentages are based on 42 subprime lenders identified by Randall M. Scheessele; slightly lower goals-qualifying percentages for 1997 (57.3 percent, 28.1 percent, and 44.7 percent, respectively) were obtained based on Scheessele's more recent list of subprime lenders. Given the similarity of the two sets of percentages, the analysis was not repeated using the more recent list. For further comparison between the two lists, see Randall M. Scheessele, *1998 HMDA Highlights*, *op. cit.* Not surprisingly, the goals-qualifying percentages for subprime lenders are much higher than the percentages (43.6 percent, 16.3 percent, and 27.8 percent, respectively) for the overall single-family conventional conforming market in 1997.

and 2,409,000 (32.4 percent) for the Underserved Areas Goal.

As seen, the low-mod market share estimate exclusive of B&C loans (57.6 percent) is similar to the original market estimate (57.8 percent) and the corresponding special affordable market estimate (29.0 percent) is the same as the original estimate. This occurs because the B&C loans that were dropped from the analysis had similar low-mod and special affordable percentages as the overall (both single-family and multifamily) market. For example, the low-mod share of the B&C was projected to be 59.3 percent and HUD's market model projected the overall low-mod share to be 57.8 percent. Thus, dropping B&C loans from the market totals does not change the overall low-mod share of the market appreciably.

The situation is different for the Underserved Areas Goal. Underserved areas account for 46.1 percent of the B&C loans, which is a higher percentage than the underserved area share of the overall market (33.7 percent). Thus, dropping the B&C loans leads to a reduction in the underserved areas market share of 1.3 percentage points, from 33.7 percent to 32.4 percent.[60]

Dropping B&C loans from HUD's model changes the mix between rental and owner units in the final market estimate. Based on assumptions about the size of the owner and rental markets for 1997, HUD's model calculates that single-family-owner units accounted for about 69.5 percent of total units financed during 1997. Dropping the B&C owner loans, as described above, reduces the owner percentage of the market by about three percentage points to 66.3 percent. Thus, another way of explaining why the goals-qualifying market shares are not affected so much by dropping B&C loans is that the rental share of the overall market increases as the B&C owner units are dropped from the market. Since rental units have very high goals-qualifying percentages, their increased importance in the market partially offsets the negative effects on the goals-qualifying shares of any reductions in B&C owner loans. In fact, this rental mix effect would come into play with any reduction in owner units from HUD's model.

There are caveats that should be mentioned concerning the above adjustments for the B&C market. The adjustment for B&C loans depends on several estimates relating to the 1997 mortgage market, derived from various sources. Different estimates of the size of the B&C market in 1997 or the goals-qualifying shares of the B&C market could lead to different estimates of the goals-qualifying shares for the overall market. The goals-qualifying shares of the B&C market were based on HMDA data for selected lenders that primarily originate subprime loans; since these lenders are likely originating both A-minus and B&C loans, the goals-qualifying percentages used here may not be accurately measuring the goals-qualifying percentages for only B&C loans. The above technique of dropping B&C loans also assumes that the coverage of B&C and non-B&C loans in HMDA's metropolitan area data is the same; however, it is likely that HMDA coverage of non-B&C loans is higher than its coverage of B&C loans.[61] Despite these caveats, it also appears that reasonably different estimates of the various market parameters would not likely change, in any significant way, the above estimates of the effects of excluding B&C loans in calculating the goals-qualifying shares of the market. As discussed below, HUD provides a range of estimates for the goals-qualifying market shares to account for uncertainty related to the various parameters included in its projection model for the mortgage market.

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[60] As discussed later, the underserved area share is probably a percentage point higher than this due to HUD's model not accounting for the high percentage of loans in underserved counties of non-metropolitan areas.

1998 Projections. As discussed earlier in Section C.2.c, there is particular uncertainty regarding multifamily origination activity for the year 1998 due to, among other things, HUD's SMLA data not yet being available. The discussion in Section C.2.c concluded that 1998 multifamily originations could have ranged from $50 to $60 billion. In this section, the 1998 goals-qualifying market shares are first estimated assuming $50 billion in multifamily originations, although it is important to recognize the uncertainty of this estimate. The high volume of single-family mortgages in 1998 increased the share of single-family-owner units to 73.1 percent, while single-family rental units comprised 13.0 percent, and multifamily units comprised a reduced 13.9 percent of the market. This shift toward single-family loans, combined with the higher level of single-family refinance activity in 1998, results in market shares for metropolitan areas that are slightly smaller than reported earlier for 1995-97: low-mod, 54.1 percent; special affordable, 26.0 percent; and underserved areas, 30.4 percent. While lower, these estimates remain higher than the market estimates that HUD made in 1995 (see earlier discussion for reasons).[62]

b. Market Estimates

This section provides HUD's estimates for the size of the low- and moderate-income mortgage market that will serve as a proxy for the four-year period (2000-2003) when the new housing goals will be in effect. Three alternative sets of projections about property shares and property low- and moderate-income percentages are given in Table D.6. Case 1 projections represent the baseline and intermediate case; it assumes that investors account for 10 percent of the single-family mortgage market. Case 2 assumes a lower investor share (8 percent) based on HMDA data and slightly more conservative low- and moderate-income percentages for single-family rental and multifamily properties (85 percent). Case 3 assumes a higher investor share (12 percent) consistent with Follain and Blackley's suggestions.

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[61] Dropping B&C loans in the manner described in the text results in the goals-qualifying percentages for the non-B&C market being underestimated since HMDA coverage of B&C loans is less than that of non-B&C loans and since B&C loans have higher goals-qualifying shares than non-B&C loans. For instance, the low-mod shares of the market reported in Table D.4 underestimate (to an unknown extent) the low-mod shares of the market inclusive of B&C loans; so reducing the low-mod owner shares by dropping B&C loans in the manner described in the text would provide an underestimate of the low-mod share of the non-B&C owner market. A study of 1997 HMDA data in Durham County, North Carolina by the Coalition for Responsible Lending (CRL) found that loans by mortgage and finance companies are often not reported to HMDA. For a summary of this study, see "Renewed Attack on Predatory Subprime Lenders" in *Fair Lending/CRA Compass*, June 9, 1999.

[62] If B&C loans are excluded from the market (using the techniques discussed earlier), the market estimates fall slightly as follows: low-mod, 53.8 percent; special affordable, 25.8 percent; and underserved areas, 29.4 percent. In 1998, the conforming B&C market is estimated to be $65 billion, with an average loan amount of $77,796, representing an estimated 836,000 B&C conforming loans. The 1998 goals-qualifying percentages (low-mod, 58.0 percent; special affordable, 28.5 percent; and underserved areas, 44.7 percent) used to "proxy" the B&C market were similar to those reported earlier for 1997. As noted earlier, there is much uncertainty about the size of the B&C market.

INSERT TABLE D.6 and TABLE D.7 HERE

Because single-family-owner units account for about 70 percent of all newly mortgaged dwelling units, the low- and moderate-income percentage for owners is the most important determinant of the total market estimate.[63] Thus, Table D.7 provides market estimates for different owner percentages as well as for different sizes of the multifamily market -- the $46 billion projection bracketed by $40 and $52 billion. Several low-mod percentages of the owner market are given in Table D.7 to account for different perceptions about the low-mod share of that market. Essentially, HUD’s approach throughout this appendix is to provide several sensitivity analyses to illustrate the effects of different views about the goals-qualifying share of the single-family-owner market on the goals-qualifying share of the overall mortgage market. This approach recognizes that there is some uncertainty in the data and that there can be different viewpoints about the various market definitions and other model parameters.

As shown in Table D.7, the market estimate is 54-56 percent if the owner percentage is at or above 40 percent (slightly less than its 1994-98 levels), and it is 53 percent if the owner percentage is 39 percent (its 1993 level). If the low- and moderate-income percentage for owners fell from its 1997-98 level of 43 percent to 36 percent, the overall market estimate would be approximately 51 percent. Thus, 51 percent is consistent with a rather significant decline in the low-mod share of the single-family home purchase market. Under HUD's baseline projections, the home purchase percentage can fall as low as 34 percent -- about four-fifths of the 1997-98 level -- and the low-and moderate-income market share would still be above 49 percent.

The volume of multifamily activity is also an important determinant of the size of the low- and moderate-income market. HUD is aware of the uncertainty surrounding projections of the multifamily market and consequently recognizes the need to conduct sensitivity analyses to determine the effects on the overall market estimate of different assumptions about the size of that market. As discussed in Section E.2, the baseline assumption of $46 billion in multifamily originations produces a rental mix of 28.9 percent, which is about the same as the baseline projection in HUD's 1995 Rule. Lowering the multifamily projection to $40 billion reduces the rental mix to 27.6 percent, which produces the set of overall low-mod market estimates that are reported in the first column of Table D.7. Compared with $46 billion, the $40 billion assumption reduces the overall low-mod market estimates by slightly over a half percentage point. For example, when the low-mod share of the owner market is 42 percent, the low-mod share of the overall market is 55.0 percent assuming $46 billion in multifamily originations but is 54.4 percent assuming $40 billion in multifamily originations.

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[63] The percentages in Table D.7 refer to borrowers purchasing a home. In HUD's model, the low-mod share of refinancing borrowers is assumed to be three percentage points lower than the low-mod share of borrowers purchasing a home; three percentage points is the average differential between 1992 and 1998. Thus, the market share model with the 40 percent owner percentage in Table D.7 assumes that 40 percent of home purchase loans and 37 percent of refinance loans are originated for borrowers with low- and moderate-income. If the same low-mod percentage were used for both refinancing and home purchase borrowers, the overall market share for the Low- and Moderate-Income Goal would increase by 0.8 of a percentage point.

The market estimates for Case 2 and Case 3 bracket those for Case 1. The smaller single-family rental market and lower low- and moderate-income percentages for rental properties result in the Case 2 estimates being almost two percentage points below the Case 1 estimates. Conversely, the higher percentages under Case 3 result in estimates of the low-mod market approximately three percentage points higher than the baseline estimates.

The various market estimates presented in Table D.7 are not all equally likely. Most of them equal or exceed 51 percent; in the baseline model, estimates below 51 percent would require the low-mod share of the single-family owner market for home purchase loans to drop to approximately 36 percent which would be over six percentage points lower than the 1993-98 average for the low-mod share of the home purchase market. With multifamily volume at $40 billion, the low-mod share of the owner market can fall to almost 36 percent before the average market share falls below 51 percent.

The upper bound (56 percent) of the low-mod estimates reported in Table D.7 for the baseline case is lower than the low-mod share of the market between 1995 and 1997. As reported above, HUD estimates that the low-mod market share during this period was 57-58 percent. There are two reasons the upper bound of 56 percent is lower than the recent, 1995-97 experience. First, the projected rental share of 29 percent is slightly lower than the rental share of 32 percent for the 1995-97 period; a smaller market share for rental units lowers the market share. Second, HUD's projections assume that refinancing borrowers will have higher incomes than borrowers purchasing a home (explained below). As Table D.4 shows, this was the reverse of the situation between 1995 and 1997 when refinancing borrowers had higher incomes than borrowers purchasing a home.[64] This fact, along with the larger single-family mix effect, resulted in the low-mod share of the market falling beow the 1997 level of 57-58 percent.

B&C Loans. B&C loans can be deducted from HUD's low-mod market estimates using the same procedure described earlier. But before doing that, some comments about how HUD's projection model operates are in order. HUD's projection model assumes that the low-mod share of refinance loans will be three percentage points lower than the low-mod share of home purchase loans, even though there have been years recently (1995-97) when the low-mod share of refinance loans has been as high or higher than that for home purchase loans (see Table D.4).[65] Since B&C loans are primarily refinance loans, this assumption of a lower low-mod share for refinance loans partially adjusts for the effects of B&C loans, based on 1995-97 market conditions. For example, in Table D.7, the low-mod home purchase percentage of 43 percent, which reflects 1997 conditions, is combined with a low-mod refinance percentage of 40 percentage when, in fact, the low-mod refinance percentage in 1997 was 45 percent. Thus, by taking the 1992-98 average low-mod differential between home purchase and refinance loans, the projection model deviates from 1995-97 conditions in the single-family owner market.[66]

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[64] On the other hand, in the heavy refinance year of 1998, refinancing borrowers had higher incomes than borrowers purchasing a home.

The effects of deducting the B&C loans from the projection model can be illustrated using the above example of a low-mod home purchase percentage of 43 percent and a low-mod refinance percentage of 40 percent; as Table D.7 shows, this translates into an overall low-mod market share of 55.7 percent. As in Section F.3.a, it is assumed that the subprime market accounts for 15 percent of all mortgages originated, which would be $144 billion based on $957 billion for the conventional market. This $144 billion estimate for the subprime market is reduced by 15 percent to arrive at $122 billion for subprime loans that will be less than the conforming loan limit. This figure is reduced by one-half to arrive at appoximately $60 billion for the conforming B&C market; with an average loan amount of $75,043, the $60 billion represents 799,542 B&C loans projected to be originated under the conforming loan limit.[67]

Following the procedure discussed in Section F.3.a, the low-mod share of the market exclusive of B&C loans is estimated to be 55.4 percent, which is only slightly lower than the original estimate (55.7 percent).[68] As noted earlier, this occurs because the B&C loans that were dropped from the analysis had similar low-mod percentages as the overall (both single-family and multifamily) market (59.3 percent and 55.7 percent, respectively). The impact of dropping B&C loans is larger when the overall market share for low-mod loans is smaller. As shown in Table D.7, a 38 percent low-mod share for single-family owners is associated with an overall low-mod share of 52.2 percent. In this case, dropping B&C loans would reduce the low-mod market share by almost one percentage point (0.7 percent) to 51.5 percent. Still, dropping B&C loans from the market totals does not change the overall low-mod share of the market appreciably.

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[65] The three percentage point differential is the average for the years 1992 to 1998 (see Table D.4).

[66] Rather, this approach reflects 1998 market conditions when the low-mod differential between home purchase and refinance loans was approximately three percentage points.

[67] The $75,043 is derived by adjusting the 1997 figure of $68,289 upward based on recent growth in the average loan amount for all loans. Also, it should be mentioned that one recent industry report suggests that the B&C part of the subprime market has fallen to 37 percent. See "Retail Channel Surges in the Troubled '98 Market" in *Inside B&C Lending*, March 25, 1999, page 3. If the 1998 average ($76,223) for the 200 subprime lenders had been adjusted upward, the projected year 2000 average would have been higher ($81,164), which would have reduced the projected number of B&C loans to 739,244.

[68] As before, 1997 HMDA data for the 42 lenders were used to provide an estimate of 59.3 percent for the portion of the B&C market that would qualify as low- and moderate-income; using the low-mod percentage (58.0 percent) for the larger, 200 sample of subprime lenders would have given similar results. Applying the 59.3 percentage to the estimated B&C market total of 799,542 gives an estimate of 474,128 B&C loans that would qualify for the Low- and Moderate-Income Goal. Adjusting HUD's model to exclude the B&C market involves subtracting the 799,542 B&C loans and the 474,128 B&C low-mod loans from the corresponding figures estimated by HUD for the total single-family and multifamily market inclusive of B&C loans. HUD's projection model estimates that 9,445,809 single-family and multifamily units will be financed and of these, 5,263,085 (55.7 percent as in Table D.7) will qualify for the Low- and Moderate-Income Goal. Deducting the B&C market estimates produces the following adjusted market estimates: a total market of 8,646,268 of

Dropping B&C loans from HUD's projection model changes the mix between rental and owner units in the final market estimate; rental units accounted for 31.5 percent of total units after dropping B&C loans compared with 28.9 percent before dropping B&C loans. Since practically all rental units qualify for the low-mod goal, their increased importance in the market partially offsets the negative effects on the goals-qualifying shares of any reductions in B&C owner loans.

Section F.3.a discussed several caveats concerning the analysis of B&C loans. It is not clear what types of loans (e.g., first versus second mortgages) are included in the B&C market estimates. There is only limited data on the borrower characteristics of B&C loans and the extent to which these loans are included in HMDA is not clear. Still, the analysis of Table D.7 and the above analysis of the effects of dropping B&C loans from the market suggest that 50-55 percent is a reasonable range of estimates for the low- and moderate-income market for the years 2000-2003. This range covers markets without B&C loans and allows for market environments that would be much less affordable than recent market conditions. The next section presents additional analyses related to market volatility and affordability conditions.

c. Economic Conditions, Market Estimates, and the Feasibility of the Low- and Moderate-Income Housing Goal

During the 1995 rule-making, there was a concern that the market share estimates and the housing goals failed to recognize the volatility of housing markets and the existence of macroeconomic cycles. There was particular concern that the market shares and housing goals were based on a period of economic expansion accompanied by record low interest rates and high housing affordability. This section discusses these issues, noting that the Secretary can consider shifts in economic conditions when evaluating the performance of the GSEs on the goals, and noting further that the market share estimates can be examined in terms of less favorable market conditions than existed during the 1993 to 1998 period.

Volatility of Market. The starting point for HUD's estimates of market share is the projected $1,100 billion in single-family originations. Shifts in economic activity could obviously affect the degree to which this projection is borne out. Changing economic conditions can affect the validity of HUD's market estimates as well as the feasibility of the GSEs' accomplishing the

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which 4,788,957 (55.4 percent) will qualify for the Low- and Moderate-Income Goal.

housing goals.

One only has to recall the volatile nature of the mortgage market in the past few years to appreciate the uncertainty around projections of that market. Large swings in refinancing, consumers switching between adjustable-rate mortgages and fixed-rate mortgages, and increased first-time homebuyer activity due to record low interest rates, have all characterized the mortgage market during the nineties. These conditions are beyond the control of the GSEs but they would affect their performance on the housing goals. A mortgage market dominated by heavy refinancing on the part of middle-income homeowners would reduce the GSEs' ability to reach a specific target on the Low- and Moderate-Income Goal, for example. A jump in interest rates would reduce the availability of very-low-income mortgages for the GSEs to purchase. But on the other hand, the next few years may be highly favorable to achieving the goals because of the high refinancing activity in 1998 and anticipated in 1999. A period of low interest rates would sustain affordability levels without causing the rush to refinance seen earlier in 1993 and more recently in 1998. A high percentage of potential refinancers have already done so, and are less likely to do so again.

HUD conducted numerous sensitivity analyses of the market shares. For example, increasing the single-family mortgage origination projection by $200 billion, from $1,100 billion to $1,300 billion, would reduce the market share for the Low- and Moderate-Income Goal by approximately one percentage point, assuming the other baseline assumptions remain unchanged. This reduction in the low-mod share of the mortgage market share occurs because the rental share of newly-mortgaged units is reduced (from 28.9 percent to 27.1 percent).

HUD also examined potential changes in the market shares under two very different macroeconomic environments, one assuming a recession and one assuming a period of low interest rates and heavy refinancing. The recessionary environment was simulated using Fannie Mae's minimum projections of single-family mortgage originations ($880 billion) and multifamily originations ($35 billion) for the year 2000. The low- and moderate-income share of the home purchase market was reduced to 34 percent, or 8.5 percentage points lower than its 1997 share.[69] Under these rather severe conditions, the overall market share for the Low- and Moderate-Income Goal would decline to 49 percent.

The heavy refinance environment was simulated assuming that the single-family origination market increased to $1,650 billion (compared with HUD's baseline of $1,100 billion) and that the multifamily market increased to $52 billion (compared with HUD's baseline of $46 billion). The relatively high level of single-family originations increases the owner share of newly-mortgaged dwelling units from 71 percent under HUD's baseline model to 74 percent in the simulated heavy refinance environment. Refinances were assumed to account for 60 percent of all single-family mortgage originations. If low- and moderate-income borrowers accounted for 40 percent of borrowers purchasing a home but only 36 percent of refinancing borrowers, then the market share for the Low- and Moderate-Income Goal would be 51 percent. If the first two percentages were reduced to 39 percent and 32 percent, respectively, then the market share for the Low- and Moderate-Income Goal would fall to 49 percent. However, if the refinance market resembled 1998 conditions, the low-mod share would be 54 percent, as reported earlier.

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[69] Refinance mortgages were assumed to account for 15 percent of all single-family originations; 31 percent of refinancing borrowers were assumed to have less-than-area-median incomes, which is 14 percentage points below the 1997 level. The average per unit multifamily loan amount was assumed to be $29,000.

Finally, HUD simulated the specific scenario based on the MBA’s most recent market estimate of $950 billion and a refinance rate of 20 percent. In this case, assuming a low-mod home purchase percentage of 40, the overall low-mod market share was 54.9 percent, assuming $46 billion in multifamily loans, and 54.3 percent, assuming $40 billion in multifamily loans.

Feasibility Determination. As stated in the 1995 Rule, HUD is well aware of the volatility of mortgage markets and the possible impacts on the GSEs' ability to meet the housing goals. FHEFSSA allows for changing market conditions.[70] If HUD has set a goal for a given year and market conditions change dramatically during or prior to the year, making it infeasible for the GSE to attain the goal, HUD must determine "whether (taking into consideration market and economic conditions and the financial condition of the enterprise) the achievement of the housing goal was or is feasible." This provision of FHEFSSA clearly allows for a finding by HUD that a goal was not feasible due to market conditions, and no subsequent actions would be taken. As HUD noted in the 1995 GSE Rule, it does not set the housing goals so that they can be met even under the worst of circumstances. Rather, as explained above, HUD has conducted numerous sensitivity analyses for economic environments much more adverse than has existed in recent years. If macroeconomic conditions change even more dramatically, the levels of the goals can be revised to reflect the changed conditions. FHEFSSA and HUD recognize that conditions could change in ways that require revised expectations.

Affordability Conditions and Market Estimates.   The market share estimates rely on 1992-1998 HMDA data for the percentage of low- and moderate-income borrowers. As discussed in Appendix A, record low interest rates, a more diverse socioeconomic group of households seeking homeownership, and affordability initiatives of the private sector have encouraged first-time buyers and low-income borrowers to enter the market during the six-year period between 1993 and 1998. A significant increase in interest rates over their 1993-98 levels would reduce the presence of low-income families in the mortgage market and the availability of low-income mortgages for purchase by the GSEs. As discussed above, the 50-55 percent range for the low-mod market share covers economic and housing market conditions less favorable than recent conditions of low interest rates and economic expansion. The low-mod share of the single-family home purchase market could fall to 34 percent, which is over nine percentage points lower than its 1998 level of about 43 percent, before the baseline market share for the Low- and

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[70] Section 1336(b)(3)(A).

Moderate-Income Goal would fall below 50 percent.

d. Conclusions About the Size of Low- and Moderate-Income Market

Based on the above findings as well as numerous sensitivity analyses, HUD concludes that 50-55 percent is a reasonable range of estimates of the mortgage market's low- and moderate-income share for the year 2000 and beyond. This range covers much more adverse market conditions than have existed recently, allows for different assumptions about the multifamily market, and excludes the effects of B&C loans. HUD recognizes that shifts in economic conditions could increase or decrease the size of the low- and moderate-income market during that period.

G. Size of the Conventional Conforming Market Serving Central Cities, Rural Areas, and Other Underserved Areas

The following discussion presents estimates of the size of the conventional conforming market for the Central City, Rural Areas, and other Underserved Areas Goal; this housing goal will also be referred to as the Underserved Areas Goal or the Geographically-Targeted Goal. The first two sections focus on underserved census tracts in metropolitan areas. Section 1 presents underserved area percentages for different property types while Section 2 presents market estimates for metropolitan areas. Section 3 discusses B&C loans and rural areas.

This rule proposes that the Central Cities, Rural Areas, and other Underserved Areas Goal for the years 2000 and thereafter be set at 29 percent of eligible units financed in calendar year 2000, and 31 percent of eligible units financed in each of calendar years 2001-2003.

1. Geographically-Targeted Goal Shares by Property Type

For purposes of the Geographically-Targeted Goal, underserved areas in metropolitan areas are defined as census tracts with:

(a) tract median income at or below 90 percent of the MSA median income; or

(b) a minority composition equal to 30 percent or more and a tract median income no more than 120 percent of MSA median income.

*Owner Mortgages***.** The first set of numbers in Table D.8 are the percentages of single-family-owner mortgages that financed properties located in underserved census tracts of metropolitan areas between 1992 and 1998. In 1997and 1998, approximately 25 percent of home purchase loans financed properties located in these areas; this represents an increase from 22 percent in 1992 and 1993. In some years, refinance loans are even more likely than home purchase loans to finance properties located in underserved census tracts. Between 1994 and 1997, 28.5 percent of refinance loans were for properties in underserved areas, compared to 25.1 percent of home purchase loans.[71] In the heavy refinance year of 1998, underserved areas accounted for about 25 percent of both refinance and home purchase loans.

INSERT TABLE D.8 HERE

Since the 1995 Rule was written, the single-family-owner market in underserved areas has remained strong, similar to the low- and moderate-income market discussed in Section F. Over the past five years, the undereserved area share of the metropolitan mortgage market has leveled off at 25-28 percent, considering both home purchase and refinance loans. This is higher than the 23 percent average for the 1992-94 period, which was the period that HUD was considering when writing the 1995 Rule. As discussed earlier, economic conditions could change and reduce the size of the underserved areas market; however, that market appears to have shifted to a higher level over the past five years.

*Renter Mortgages***.** The second and third sets of numbers in Table D.8 are the underserved area percentages for single-family rental mortgages and multifamily mortgages, respectively. Based on HMDA data for single-family, non-owner-occupied (investor) loans, the underserved area share of newly-mortgaged single-family rental units has been in the 43-45 percent range over the past five years. HMDA data also show that about half of newly-mortgaged multifamily rental units are located in underserved areas.

2. Market Estimates for Underserved Areas in Metropolitan Areas

In the 1995 GSE Rule, HUD estimated that the market share for underserved areas would be between 25 and 28 percent. This estimate turned out to be below market experience, as underserved areas accounted for approximately 33 percent of all mortgages originated in metropolitan areas between 1995 and 1997 and for 30 percent in 1998 (see Section F.3.a above).[72]

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[71] As shown in Table D.8, excluding loans less than $15,000 and manufactured home loans reduces the 1997 underserved area percentage by 1.2 percentage points for all single-family-owner loans from 27.8 to 26.6 percent. Dropping only small loans reduces the underserved areas share of the metropolitan market by 0.4 and dropping manufactured loans (above $15,0000) reduces the market by 0.8.

[72] As mentioned earlier, dropping B&C loans reduces the underserved area estimate for 1997 from 33.7 percent to 32.4 percent. The main reason for HUD's underestimate in 1995 was not anticipating the high percentages of single-family-owner mortgages that would be originated in underserved areas. During the 1995-97 period, about 27 percent of single-family-owner mortgages financed properties in underserved areas; this compares with 24 percent for the 1992-94 period which was the basis for HUD's earlier analysis. There are other reasons the underserved area market shares for 1995 to 1997 were higher than HUD's 25-28 percent estimate. As discussed earlier, rental properties accounted for a larger share (31 percent) of the market during this period than assumed (29 percent) in HUD's 1995 model. Single-family rental and multifamily mortgages originated during this period were also more likely to finance properties located in underserved areas than assumed in HUD's earlier model. In

Table D.9 reports HUD's estimates of the market share for underserved areas based on the projection model discussed earlier.[73] After presenting these estimates, which are based mainly on HMDA data for metropolitan areas, the effects of dropping B&C loans and including non-metropolitan areas will be discussed.

INSERT TABLE D.9 HERE

The percentage of single-family-owner mortgages financing properties in underserved areas is the most important determinant of the overall market share for this goal. Therefore, Table D.9 reports market shares for different single-family-owner percentages ranging from 28 percent (1997 HMDA) to 20 percent (1993 HMDA) to 18 percent. If the single-family-owner percentage for underserved areas is at its 1994-98 HMDA average of 26 percent, the market share estimate is almost 32 percent. The overall market share for underserved areas peaks at 33 percent when the single-family-owner percentage is at its 1997 figure of 28 percent. Most of the estimated market shares for the owner percentages that are slightly below recent experience are in the 30-31 percent range. In the baseline case, the single-family-owner percentage can go as low as 23 percent, which is over 3 percentage points lower than the 1994-98 HMDA average, and the estimated market share for underserved areas remains almost 30 percent.[74]

Unlike the Low- and Moderate-Income Goal, the market estimates differ only slightly as one moves from Case 1 to Case 3 and from $40 billion to $52 billion in the size of the multifamily market. For example, reducing the assumed volume to $40 billion reduces the overall market projection for underserved areas by only about 0.3 percentage points. This is because the underserved area differentials between owner and rental properties are not as large as the low- and moderate-income differentials reported earlier. Several additional sensitivity analyses were conducted. For example, adding (deducting) $200 billion to the $1,100 billion single-family originations would reduce (increase) the underserved area market share by about 0.7 (1.0) percent, assuming there were no other changes. The MBA estimated in September 1999 that year 2000 single-family mortgage volume would be about $950 billion, with a refinance rate of 20

1997, 45 percent of single-family rental mortgages and 48 percent of multifamily mortgages financed properties in underserved areas, both figures larger than HUD's assumptions (37.5 percent and 42.5 percent, respectively) in its earlier model. Even in the heavy refinance year of 1998, the underserved areas market share (30 percent) was higher than projected by HUD during the 1995 rule-making process.

[73] Table D.9 presents estimates for the same combinations of projections used to analyze the Low- and Moderate-Income Goal. Table D.6 in Section F.3 defines Cases 1, 2, and 3; Case 1 (the baseline) projects a 42.5 percent share for single-family rentals and a 48 percent share for multifamily properties while the more conservative Case 2 projects 40 percent and 46 percent, respectively.

[74] The recession scenario described in Section F.3.c assumed that the underserved area percentage for single-family-owner mortgages was 21 percent or almost seven percentage points lower than its 1997 value. In this case, the overall market share for underserved areas declines to 28 percent.

percent. With these assumptions and a single-family owner underserved area percentage of 25 percent, the overall market share for underserved units is 31.4 percent if multifamily loans total $46 billion, and 31.1 percent if multifamily loans total $40 billion.

3. Adjustments: B&C Loans and the Rural Underserved Area Market

B&C Loans. The procedure for dropping B&C loans from the projections is the same as described in Section F.3.b for the Low- and Moderate-Income Goal. The underserved area percentage for B&C loans is 46.1 percent, which is much higher than the projected percentage for the overall market (slightly over 30 percent as indicated in Table D.9). Thus, dropping B&C loans will reduce the overall market estimates. Consider in Table D.9, the case of a single-family-owner percentage of 28 percent, which yields an overall market estimate for underserved areas of 33.1 percent. Dropping B&C loans from the projection model reduces the underserved areas market share by 1.2 percentage points to 31.9.

Non-metropolitan Areas. Underserved rural areas are non-metropolitan counties with:

(a) county median income at or below 95 percent of the greater of statewide non-metropolitan median income or nationwide non-metropolitan income; or

(b) a minority composition equal to 30 percent or more and a county median income no more that 120 percent of statewide non-metropolitan median income.

HMDA does not provide mortgage data for non-metropolitan counties, which makes it impossible to estimate the size of the mortgage market in rural areas. However, all indicators suggest that underserved counties in non-metropolitan areas comprise a larger share of the non-metropolitan mortgage market than the underserved census tracts in metropolitan areas comprise of the metropolitan mortgage market. For instance, underserved counties within rural areas include 54 percent of non-metropolitan homeowners; on the other hand, underserved census tracts in metropolitan areas account for only 34 percent of metropolitan homeowners.

In 1997, 36 percent of the GSE's total purchases in non-metropolitan areas were in underserved counties while 27 percent of their purchases in metropolitan areas were in underserved census tracts. These figures also suggest the market share for underserved counties in rural areas is higher than the market share for underserved census tracts in metropolitan areas. Thus, HUD's use of the metropolitan estimate to proxy the overall market for this goal, including rural areas, is conservative. If mortgage data for non-metropolitan areas were available, the estimated market share for the Underserved Areas Goal could be as much as one percentage point higher.[75]

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[75] Assuming that non-metropolitan areas account for 15 percent of all single-family-owner mortgages and recalling that the projected single-family-owner market for the year 2000 accounts for 71 percent of newly-mortgaged dwelling units, then the underserved area differential of 9 percent in the GSE purchase data would raise the

The estimates presented in Table D.9 and this section's analysis of dropping B&C loans and including non-metropolitan areas suggest that 29-32 percent is a reasonable range for the market estimate for underserved areas based on the projection model described earlier. This range incorporates market conditions that are more adverse than have existed recently and it excludes B&C loans from the market estimates.

4. Conclusions

Based on the above findings as well as numerous sensitivity analyses, HUD concludes that 29-32 percent is a reasonable estimate of mortgage market originations that would qualify toward achievement of the Geographically Targeted Goal if purchased by a GSE. HUD recognizes that shifts in economic and housing market conditions could affect the size of this market; however, the market estimate allows for the possibility that adverse economic conditions can make housing less affordable than it has been in the last few years. In addition, the market estimate incorporates a range of assumptions about the size of the multifamily market.

H. Size of the Conventional Conforming Market for the Special Affordable Housing Goal

This section presents estimates of the conventional conforming mortgage market for the Special Affordable Housing Goal. The special affordable market consists of owner and rental dwelling units which are occupied by, or affordable to: (a) very-low-income families; *or* (b) low-income families in low-income census tracts; *or* (c) low-income families in multifamily projects that meet minimum income thresholds patterned on the low-income housing tax credit (LIHTC).[76] HUD estimates that the special affordable market is 23-26 percent of the conventional conforming market.

HUD is proposing that the annual goal for mortgage purchases qualifying under the Special Affordable Housing Goal be 18 percent of eligible units financed in calendar year 2000, and 20 percent of eligible units financed in each of calendar years 2001-2003. This proposed rule further provides that of the total mortgage purchases counted toward the Special Affordable Housing Goal, each GSE must annually purchase multifamily mortgages in an amount equal to at least 0.9 percent of the dollar volume of combined (single family and multifamily) 1998 mortgage purchases in each of calendar year 2000, and 1.0 percent in each of calendar years 2001-2003.

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overall market estimate by 0.96 of a percentage point (9 times 0.15 times 0.71). Of course, the market differential may not be the same as that reflected in the GSE data.

[76] There are two LIHTC thresholds: at least 20 percent of the units are affordable at 50 percent of AMI or at least 40 percent of the units are affordable at 60 percent of AMI.

This implies the following thresholds for the two GSEs:[77]

	2000 (in billions)	2001-2003 (in billions)
Fannie Mae……………….	$3.31	$3.68
Freddie Mac………………	$2.46	$2.73

Section F described HUD's methodology for estimating the size of the low- and moderate-income market. Essentially the same methodology is employed here except that the focus is on the very-low-income market (0-60 percent of Area Median Income) and that portion of the low-income market (60-80 percent of Area Median Income) that is located in low-income census tracts. Data are not available to estimate the number of renters with incomes between 60 and 80 percent of Area Median Income who live in projects that meet the tax credit thresholds. Thus, this part of the Special Affordable Housing Goal is not included in the market estimate.

1. *Special Affordable Shares by Property Type*

The basic approach involves estimating for each property type the share of dwelling units financed by mortgages in a particular year that are occupied by very-low-income families or by low-income families living in low-income areas. HUD has combined mortgage information from HMDA, the American Housing Survey, and the Property Owners and Managers Survey in order to estimate these special affordable shares.

a. Special Affordable Owner Percentages

The percentage of single-family-owners that qualify for the Special Affordable Goal is reported in Table D.10. Table D.10 also reports data for the two components of the Special Affordable Goal – very-low-income borrowers and low-income borrowers living in low-income census tracts. HMDA data show that special affordable borrowers accounted for 15.3 percent of all conforming home purchase loans between 1996 and 1998. The special affordable share of the market has followed a pattern similar to that discussed earlier for the low-mod share of the market. The percentage of special affordable borrowers increased significantly between 1992 and 1994, from 10.4 percent of the conforming market to 12.6 percent in 1993, and then to 14.1 percent in 1994. The additional years since the 1995 Rule was written have seen the special affordable market maintain itself at an even higher level. Over the past four years (1995-98), the special affordable share of the market has averaged 15.1 percent, or almost 13.0 percent if manufactured and small loans are excluded from the market totals. As mentioned earlier, lending patterns could change with sharp changes in the economy, but the fact that there have been several years of strong affordable lending suggests that the market has changed in fundamental ways from the mortgage market of the early 1990s. The effect of one factor, the growth in the B&C loans, on the special affordable market is discussed below in Section H.2.

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[77] HUD has determined that the total dollar volume of the GSEs' combined (single and multifamily) mortgage purchases in 1998, measured in unpaid principal balance at acquisition, was as follows: Fannie Mae $367,589 million; Freddie Mac $273,231 million.

INSERT TABLE D.10 HERE

b. Very-Low-Income Rental Percentages

Table D.5 in Section F reported the percentages of the single-family rental and multifamily stock affordable to very-low-income families. According to the AHS, 57 percent of single-family units and 49 percent of multifamily units were affordable to very-low-income families in 1995. The corresponding average values for the AHS's six surveys between 1985 and 1995 were 58 percent and 47 percent, respectively.

Outstanding Housing Stock versus Mortgage Flow. As discussed in Section F, an important issue concerns whether rent data based on the existing rental stock from the AHS can be used to proxy rents of newly mortgaged rental units.[78] HUD's analysis of POMS data suggests that it can -- estimates from POMS of the rent affordability of newly-mortgaged rental properties are quite consistent with the AHS data reported in Table D.5 on the affordability of the rental stock. Fifty-six (56) percent of single-family rental properties with new mortgages between 1993 and 1995 were affordable to very-low-income families, as was 51 percent of newly-mortgaged multifamily properties. These percentages for newly-mortgaged properties from the POMS are similar to those reported above from the AHS for the rental stock. The baseline projection from HUD's market share model assumes that 50 percent of newly-mortgaged, single-family rental units, and 47 percent of multifamily units, are affordable to very-low-income families.

c. Low-Income Renters in Low-Income Areas

HMDA does not provide data on low-income renters living in low-income census tracts. As a substitute, HUD used the POMS and AHS data. The share of single-family and multifamily rental units affordable to low-income renters at 60-80 percent of area median income (AMI) and located in low-income tracts was calculated using the internal Census Bureau AHS and POMS data files.[79] The POMS data showed that 8.3 percent of the 1995, single-family rental stock, and 9.3 percent of single-family rental units receiving financing between 1993 and 1995, were affordable at the 60-80 percent level and were located in low-income census tracts. The POMS data also showed that 12.4 percent of the 1995 multifamily stock, and 13.5 percent of the multifamily units receiving financing between 1993 and 1995, were affordable at the 60-80 percent level and located in low-income census tracts.[80] The baseline analysis below assumes that 8 percent of the single-family rental units and 11.0 percent of multifamily units are affordable at 60-80 percent of AMI and located in low-income areas.[81]

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[78] Previous analysis of this issue has focused on the relative merits of data from the recently completed stock versus data from the outstanding stock. The very-low-income percentages are much lower for the recently completed stock -- for instance, the averages across the five AHS surveys were 15 percent for recently completed multifamily properties versus 46 percent for the multifamily stock. But it seems obvious that data from the recently completed stock would underestimate the affordability of newly-mortgaged units because they exclude purchase and refinance transactions involving older buildings, which generally charge lower rents than newly-constructed buildings. Blackley and Follain concluded that newly-constructed properties did not provide a satisfactory basis for estimating the affordability of newly-mortgaged properties. See "A Critique of the Methodology Used to Determine Affordable Housing Goals for the Government Sponsored Housing Enterprises."

2. Size of the Special Affordable Market

During the 1995 rule making, HUD estimated a market share for the Special Affordable Goal of 20-23 percent. This estimate turned out to be below market experience, as the special affordable market accounted for almost 29 percent of all housing units financed in metropolitan areas between 1995 and 1997. As explained in Section F.3.a, there are several explanations for HUD's underestimate of the 1995-97 market. The financing of rental properties during 1995-97 was larger than anticipated. HUD's earlier estimates assumed a rental share of 29 percent, which was lower that the approximately 31 percent rental share for the years 1995-97. Another important reason for HUD's underestimate was not anticipating the high percentage of single-family-owner mortgages that would be originated for special affordable borrowers. During the 1995-97 period, 15.4 percent of all (both home purchase and refinance) single-family-owner mortgages financed properties for special affordable borrowers; this compares with 9.5 percent for the 1992-94 period which was the basis for HUD's earlier analysis. The 1995-97 mortgage markets originated more affordable single-family mortgages than anticipated.[82] Furthermore, the special affordable market remained strong during the heavy refinance year of 1998. Over 26 percent of all dwelling units financed in 1998 qualified for the Special Affordable Goal.

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[79] Affordability was calculated as discussed earlier in Section F, using AHS monthly housing cost, monthly rent, number of bedrooms, and MSA location fields. Low-income tracts were identified using the income characteristics of census tracts from the 1990 Census of Population, and the census tract field on the AHS file was used to assign units in the AHS survey to low-income tracts and other tracts. POMS data on year of mortgage origination were utilized to restrict the sample to properties mortgaged during 1993-1995.

[80] During the 1995 rule-making process, HUD examined the rental housing stock located in low-income zones of 41 metropolitan areas surveyed as part of the AHS between 1989 and 1993. While the low-income zones did not exactly coincide with low-income tracts, they were the only proxy readily available to HUD at that time. Slightly over 13 percent of single-family rental units were both affordable at the 60-80 percent of AMI level and located in low-income zones; almost 16 percent of multifamily units fell into this category.

[81] Therefore, combining the assumed very-low-income percentage of 50 percent (47 percent) for single-family rental (multifamily) units with the assumed low-income-in-low-income-area percentage of 8 percent (11 percent) for single-family rental (multifamily) units yields the special affordable percentage of 58 percent (58 percent) for single-family rental (multifamily) units. This is the baseline Case 1 in Table D.6.

The size of the special affordable market depends in large part on the size of the multifamily market and on the special affordable percentages of both owners and renters. Table D.11 gives new market estimates for different combinations of these factors. As before, Case 2 is slightly more conservative than the baseline projections (Case 1) mentioned above. For instance, Case 2 assumes that only 6 percent of rental units are affordable to low-income renters living in low-income areas.

INSERT TABLE D.11 HERE

When the special affordable share of the single-family market for home mortgages is at its 1994-98 level of 14-15 percent, the special affordable market estimate is 26-27 percent under HUD's baseline projections. In fact, the market estimates remain above 24 percent even if the special affordable percentage for home loans falls from its 15-percent-plus level during 1996-1998 to as low as 10-11 percent, which is similar to the 1992 level. Thus, a 24 percent market estimate allows for the possibility that adverse economic conditions could keep special affordable families out of the housing market. On the other hand, if the special affordable percentage stays at its recent levels, the market estimate is as high as 27 percent.[83]

B&C Loans. The procedure for dropping B&C loans from the projections is the same as described in Section F.3.b for the Low- and Moderate-Income Goal. The special affordable percentage for B&C loans is 29.4 percent, which is not much higher than the projected percentages for the overall market given in Table D.9). Thus, dropping B&C loans will not appreciably reduce the overall market estimates. Consider in Table D.11, the case of a single-family-owner percentage of 15 percent, which yields an overall market estimate for Special Affordable Goal of 27 percent. Dropping B&C loans from the projection model reduces the special affordable market share by 0.2 percentage points to 26.8. The effect would be slightly larger for the other cases given in Table D.11.

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[82] The 29.0 percent estimate for 1997 also includes manufactured housing and small loans while HUD's earlier 20-23 percent estimate excluded the effects of these loans. Excluding manufacturing housing and small loans from the 1997 market would reduce the special affordable share of 29.0 percent by a percentage point to 28.0 percent. This can be approximated by multiplying the single-family-owner property share (0.69) for 1997 by the 1.4 percentage point differential between the special affordable share of all (home purchase and refinance) single-family-owner mortgages in 1997 with manufactured and small loans included (16.3 percent) and the corresponding share with these loans excluded (14.9 percent). This gives a reduction of 0.97 percentage point. These calculations overstate the actual reduction because they do not include the effect of the increase in the rental share of the market that accompanies dropping manufactured housing and small loans from the market totals.

[83] The upper bound of 27 percent from HUD's baseline special affordable model is obtained when the special affordable share of home purchase loans is 15.0 percent, which was the figure for 1997 (see Table D.10). However, the upper bound of 27 percent is below the 1997 estimate of the special affordable market of 29.0 percent presented earlier (see Section F.3.a). There are several reasons for this discrepancy. As mentioned earlier, the rental share in HUD's baseline projection model is less than the rental share of the 1997 market. In addition, HUD's projection model assumes that the special affordable share of refinance mortgages will be 1.4 percentage points less than the corresponding share for home purchase loans (1.4 percent is the average difference between 1992 and 1998). But in 1997, the special affordable share (17.6 percent) of refinance mortgages was larger than the corresponding share (15.3 percent) for home loans.

Based on the data presented in Table D.11 and the analysis of the effects of excluding B&C loans from the market, a range of 23-26 percent is a reasonable estimate of the special affordable market. This range includes market conditions that are much more adverse than have recently existed. Additional sensitivity analyses are provided in the remainder of this section.

Additional Sensitivity Analyses. The market estimate declines by one-half of a percentage point if the estimate of the multifamily mortgage market is changed from $46 billion to $40 billion. For example, when the special affordable share of the owner market is 13 percent, the overall market estimate is reduced from 25.6 percent to 25.1 percent when the multifamily volume assumption is reduced from $46 billion to $40 billion. The market estimates under the more conservative Case 2 projections are approximately two percentage points below those under the Case 1 projections. This is due mainly to Case 2's lower share of single-family investor mortgages (8 percent versus 10 percent in Case 1) and its lower affordability and low-income-area percentages for rental housing (e.g., 53 percent for single-family rental units in Case 2 versus 58 percent in Case 1).

Increasing the volume of single-family originations by $200 billion to $1,300 billion reduces the market estimate by 0.7 percentage points, while reducing the volume of single-family originations by $200 billion to $900 billion increases the market estimate by about one percentage point. Using a recent MBA projection of $950 billion in single-family originations and a 20 percent refinance rate, the special affordable market is projected to be 26.6 percent if multifamily originations are $46 billion, and 26.0 percent if multifamily originations are $40 billion, assuming that the single-family owner-occupied special affordable share is 13 percent.

A recession scenario and a heavy refinance scenario were described during the discussion of the Low- and Moderate-Income Goal in Section F. The recession scenario assumed that special affordable borrowers would account for only 9-10 percent of newly-originated home loans. In these cases, the market share for the Special Affordable Goal declines to 23-24 percent. In the heavy refinance scenario, the special affordable percentage for refinancing borrowers was assumed to be four percentage points lower that the corresponding percentage for borrowers purchasing a home. In this case, the market share for the Special Affordable Goal was typically in the 23-25 percent range, depending on assumptions about the incomes of borrowers in the home purchase market. As noted earlier, the special affordable market share was approximately 26 percent during 1998, a period of heavy refinance activity.

*Tax Credit Definition***.** Data are not available to measure the increase in market share associated with including low-income units located in multifamily buildings that meet threshold standards for the low-income housing tax credit. Currently, the effect on GSE performance under the Special Affordable Housing Goal is rather small. For instance, adding the tax credit condition increases Fannie Mae's 1997 performance by only half a percentage point, from 16.5 to 17 percent. At first glance, this small effect seems at odds with the fact that 26.5 percent of Fannie Mae's multifamily purchases during 1997 involved properties with a very-low-income occupancy of 100 percent, and 43.0 percent involved properties with a very-low-income occupancy of over 40 percent. The explanation, of course, is that most of the rental units in these "tax-credit" properties are covered by the very-low-income and low-income-in-low-income-areas components of the Special Affordable Goal.

3. Conclusions

Sensitivity analyses were conducted for the market shares of each property type, for the very-low-income shares of each property type, and for various assumptions in the market projection model. These analyses suggest that 23-26 percent is a reasonable estimate of the size of the conventional conforming market for the Special Affordable Housing Goal. This estimate excludes B&C loans and allows for the possibility that homeownership will not remain as affordable as it has over the past five years. In addition, the estimate covers a range of projections about the size of the multifamily market.

I. Impact of New FHA Loan Limits

This section discusses recent statutory changes that raised the FHA loan limits and the impact of these changes on the conventional market and the ability of the GSEs to meet their housing goals.

Studies have shown that the FHA has been the primary bearer of credit risk on home mortgage loans to lower-income and African American or Hispanic borrowers and in low-income, central city, and minority neighborhoods. Many of the loans that FHA insures would qualify for one or more of the GSEs' housing goals. Raising the FHA loan limits will increase the portion of the mortgage market that is eligible for FHA, possibly resulting in a shift of loans from the conventional market to FHA. It could also shift loans that would otherwise meet the GSE goals from the conventional market to FHA. To the extent this occurs, the new FHA loan limits could have an impact on the conventional market and on the GSEs.

The information in this section suggests that many of the new FHA loans would not qualify for conventional financing. Some of the above mentioned studies have also shown that there has been little overlap between FHA and the conventional market prior to the loan limit increase. This is likely to be the case for newly eligible FHA loans as the higher loan limits extend FHA access to more families who are denied mortgage credit or otherwise underserved by the conventional market. The new FHA loans are likely to collectively resemble current FHA loans in many respects, but with higher loan amounts and borrower incomes. Differential homeownership rates as well as mortgage credit denials which persist across income levels for minority families and inner city residents provide evidence that underserved markets exist for FHA to serve at these higher loan amounts and incomes.

The number of new FHA loans resulting from the loan limit increase is likely to be relatively small. While reasonable estimates of new FHA volume could vary, their range is likely to be under 50,000 new loans compared to FHA's total home purchase loan volume of about 800,000 in 1998. Standard and Poor's Insurance Ratings Service does not offer a numerical estimate, but this rating agency finds the outlook for the private mortgage insurance industry is stable through 2001, and suggests that the portion of the market that FHA will serve near the new loan limits will be less than the portion it presently serves at lower levels. Similarly, Moody's Investors Service believes the higher FHA loan limits will "dent" the volumes of private mortgage insurers, but is not a source of significant concern with regard to the industry outlook.

Furthermore, most new loans are expected to come from higher cost housing markets. In many of these markets the old FHA loan limit ceiling denied FHA access to all but the bottom tier of the local housing market. In these higher cost markets, the new FHA loans will typically be above $150,000 requiring borrower incomes in excess of $60,000 to qualify.

The discussion of this issue is organized as follows. Section I describes the statutory changes in the FHA floor and ceiling. Section 2 discusses the estimated budget impact of the changes in the legislation, including the FHA volume increases that were assumed for making this estimate. Section 3 provides the estimated range of new FHA loan volume. Section 4 discusses why the overlap with the conventional market for the new FHA loans should be small. Finally Section 5 discusses the impacts on the conventional market and the GSEs.

1. Changes in the Statutory FHA Loan Limit Floor and Ceiling

The Department's FY 1999 Appropriations Act raised the FHA loan limit floor and ceiling to 48 and 87 percent, respectively, of the GSEs' conforming loan limit. Prior to this change the FHA loan limit floor and ceiling were 38 and 75 percent, respectively, of the conforming loan limit. The statute did not change the method of establishing FHA loan limits by locality: FHA loan limits for a 1-family dwelling continue to be set at 95 percent of local median home sales price, subject to the statutory floor and ceiling as the minimum and maximum, respectively.[84]

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[84] Different percentages of local median sales price apply to 2-, 3-, and 4-family dwellings.

The Department implemented the new FHA loan limit floor and ceiling in October 1998. In January 1999 the Department again revised FHA loan limits to reflect the higher conforming loan limit that went into effect on January 1.[85]

2. *Estimated Budget Impacts*

Prior to passage of the 1999 HUD Appropriations Act, the Department estimated the budget impact of the legislative proposal to raise the FHA loan limit floor and ceiling to 48 and 87 percent, respectively, of the conforming loan limit.[86] At that time the Department estimated the

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[85] The Department's January 1999 update also represented a *comprehensive* update of FHA loan limits based on an analysis of 1998 local median sales prices from various data sources. This comprehensive update, the first undertaken by the Department since 1995, raised FHA loan limits in over 90 percent of the nation's 3,141 counties. In many of the counties which received increases in January 1999, the FHA loan limit had not changed since the previous comprehensive update in 1995. For many of these areas the 1999 increase was due to the Department's reestimation of the local median sales price, and not due to the statutory changes.

[86] The budget impact was estimated to be $80 million in first year savings, which represents the net present value of future cash flows associated with the new loans the Department expected to make as a result of the higher loan limit floor and ceiling.

The methodology used by the Department to arrive at these budget estimates was reviewed by the Office of Management and Budget and by the Congressional Budget Office. The methodology was based on a detailed analysis of the 1996 Home Mortgage Disclosure Act data disaggregated to the individual metropolitan area level. For each metropolitan area, the Department analyzed the HMDA distribution of all home purchase loans made in 1996.

The first step in the Department's methodology was to determine the number and size of newly eligible loans in metropolitan areas (as reported in HMDA) had the higher FHA floor and ceiling provisions been in effect in 1996. To do this, the Department used the actual 1996 FHA loan limit for each area and estimated new hypothetical FHA limits for each are using 48 and 87 percent of the 1996 conforming loan limit of $207,000 as the new floor and ceiling. The next step was to estimate the share of the newly eligible loans in each area that might come to FHA. The FHA shares were estimated for each decile of the HMDA distribution in the local market, assuming that FHA's average share of the eligible market in each MSA would decline as FHA's penetration extended into the higher deciles of the market. The assumption of declining FHA market shares in the upper deciles of the market was reasonable for two reasons. First, higher income borrowers generally have more choices in terms of access to conventional financing. Second, FHA's downpayment requirements at the time were greater for higher priced homes. Under FHA downpayment rules in effect at the time this analysis was performed, FHA required a 10 percent marginal downpayment on the amount of property acquisition cost above $125,000. (Acquisition cost is defined as the lesser of sales price or appraised value plus allowable borrower-paid closing costs.) Higher downpayment requirements in the upper end of the market made FHA financing a less attractive alternative to conventional financing for potential borrowers who could qualify for a conventional loan.

For non-metropolitan areas, the methodology was less area specific because HMDA data do not generally cover non-metropolitan areas. Rather, 1995 American Housing Survey data was used to determine that about 75 percent of the rural market was already eligible for FHA under the old floor (38 percent of conforming loan limit). Despite the high eligibility, only 7 percent of the rural market was actually financed with FHA-insured loans. Raising the FHA floor to 48 percent of the conforming loan limit was estimated to increase FHA volume by about 11 percent, percentage increase in the number of FHA-insured home purchase loans in FY 1999 relative to the prior year would be about 2.6 percent in metropolitan areas and about 11 percent in non-metropolitan areas. The average loan amount of the new loans was estimated at the time to be about $143,000, reflecting the fact that some new loans would come in at or near the new floor of (then) $109,032 and others in higher cost markets would come in at or near the new ceiling of (then) $197,621. Areas with 1998 loan limits between the new floor of $109,032 and the 1998 ceiling of $170,362 were considered to unaffected by the statutory changes because their loan limit would continue to be set at 95 percent of local median sales price. The Department estimated that 36 high-cost metropolitan areas would be affected by the higher proposed ceiling, 174 lower-cost metropolitan areas and most non-metropolitan counties would be affected by the higher floor, and 115 moderate-cost metropolitan areas would be unaffected.

The biggest impact on FHA volume was expected from raising the ceiling in the 36 highest cost metropolitan areas. In these high cost areas, the old FHA ceiling (75 percent of the conforming loan limit) was lower than 95 percent of the local median house price. Thus, the old ceiling limited FHA eligibility to the lower-priced portion of the local market. Raising the ceiling would extend FHA eligibility into the higher volume middle of the local sales market for these high cost markets.

In lower cost areas where the old FHA floor applied, FHA eligibility was already above the middle of the local market. That is, the old floor (38 percent of the conforming loan limit) was higher than 95 percent of the local median house price.[87] Raising the FHA floor would have a relatively small impact in these lower cost areas, as FHA is likely to capture a smaller share of the newly eligible upper portion of the lower market.

Two additional provisions enacted by the HUD Appropriations Act were not incorporated into the Department's original budget estimate. These are (1) the provision which directed the Department to set new loan limits for entire metropolitan areas based on the median home sales price of the highest cost county within the metropolitan area, and (2) the downpayment simplification provision, which not only simplified the minimum FHA downpayment calculation but also eliminated the 10 percent marginal downpayment requirement for higher priced homes.[88]

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assuming a declining share of the newly eligible existing housing market, plus some additional demand for new construction.

[87] The Department used 1995 American Housing Survey data to estimate that 75 percent of the rural market was already covered by the old FHA floor at 38 percent of conforming loan limit.

[88] Prior to the enactment of HUD's FY 1999 Appropriations Act, FHA's statutory downpayment requirements were 3 percent of the first $25,000 of property acquisition cost, 5 percent of the next $100,000 of acquisition cost, and 10 percent of the acquisition cost above $125,000. (Acquisition cost is defined as the lesser of sales price or appraised value of the property plus allowable borrower-paid closing costs.) The new provision limits the mortgage to 97.75 percent (or 97.15 percent in areas with lower than average closing costs), subject to the borrower having a

The high cost county provision was estimated to raise the budget impact by about 6 percent to $85 million. The impact was at first considered to be small because the Department did not have access to county-level median sales prices in most metropolitan areas with which to implement this provision. Rather, changes due to the highest cost county provision were assumed to come from locally generated sales data submitted to the Department by individual counties to appeal their FHA loan limits. Loan limit changes based on previously approved local appeals would not have a large impact on FHA volume, and would affect primarily moderate cost metropolitan areas (most being among the 115 moderate cost areas unaffected by the new floor and ceiling as noted above). However, the impact of this provision may prove to be larger than the original estimate as additional appeals are being filed from multiple county metropolitan areas, and as the Department seeks out new national sources of county level median sales prices.[89]

The downpayment provisions in the HUD Appropriations Act were tested in pilot programs conducted by FHA in Alaska and Hawaii during 1997. In both these states, where home prices are generally higher than the rest of the nation, the downpayment simplification pilot raised the percentage of large loans that FHA insured in 1997 relative to the pre-pilot year of 1996. In the Department's 1998 report to Congress on the Alaska and Hawaii pilots, it was reported that during these two years loans over $150,000 increased from 20 percent to 28 percent in Alaska, and from 51 percent to 54 percent in Hawaii.[90] This experience suggests that the downpayment simplification provision will affect the volume of large loans the Department insures and could produce a higher impact from raising the FHA loan limit ceiling.

3. Estimated FHA Loan Volume

The inclusion of the high cost county and the downpayment simplification provisions in the HUD FY 1999 Appropriations Act suggest that the estimate of about a 3 percent increase in FHA home purchase volume due to the higher FHA loan limits may be low. The impacts of these two additional provisions are difficult to quantify with precision. A volume estimate for FHA which takes into account the high cost county and downpayment simplification provisions could be two times the original 3 percent estimate. That is, the combined impact of all the statutory changes on FHA loan volume would be an increase of approximately 6 percent in home purchase mortgages insured.

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3 percent minimum cash investment. (Borrower cash investment includes allowable borrower-paid closing costs.) This change in the FHA downpayment provisions will raise the maximum FHA mortgage amount for buyers of higher priced homes.

[89] The Department is working with the Office of Federal Housing Enterprise Oversight to develop additional data on local median sales price that may prove useful for future FHA loan limit determinations.

[90] "A Study of FHA Downpayment Simplification," April 1998, Tables 11 and 12.

In addition, the average loan amount of new loans, which had been estimated at $143,000, should now be estimated at about $154,000, reflecting new loans now coming from moderate-cost previously unaffected areas (due to the high cost county provision), and more loans than originally estimated coming from the highest cost areas (due to downpayment simplification).

The 1999 dollar volume of new FHA business associated with the loan limit increase and the other provisions of the1999 Appropriations Act is estimated as follows. In FY 1998, the Department insured about 800,000 home purchase loans. Using 6 percent as the estimated increase in the number of home purchase loan cases that FHA will insure in a typical year gives about 50,000 new loans. At an average loan amount of $154,000 per new loan, the estimated annual dollar volume impact would be over $7.0 billion.

An estimate of the breakdown of the new loans by size and minimum income to qualify is as follows. If one assumes the upper end of the likely range of new FHA home purchase loan cases (that is, a 6 percent increase), then the following is an estimated breakdown of loan size and minimum borrower incomes:[91]

Range of Loan Amounts	**Number of New Loans**	**Average New Loan Amount**	**Minimum Income to Qualify for Average Loan**
Under $150,000…..	12,000	$ 92,000	$33,000
$150,000 and Over..	36,000	$175,000	$60,000
Total………………	48,000	$154,000	

4. Overlap with the Conventional Market Should be Small

The Department based its original budget impact estimate and the revised volume estimate on an analysis of HMDA data because this data source was determined to be the best available indicator of local market activity by loan size. By using HMDA data for this purpose, one might infer that all the new FHA-insured loans will result in a one-for-one reduction in conventional lending. Rather, as will be discussed below, the Department believes that FHA will extend new housing opportunities to those who are inadequately served by the conventional markets. HMDA data are limited in that they do not support an analysis of the potential overlap between the new FHA loans and the existing conventional market. The question of overlap will instead be addressed by the discussion and analysis presented below.

a. FHA Competition with Private Mortgage Insurance

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[91] Minimum incomes based on a 7.5 percent, 30-year fixed-rate mortgage loan and a front-end ratio of 29 percent.

In a February 1999 commentary on the outlook for the U.S. residential mortgage insurance industry, Standard and Poor's Insurance Ratings Service projected a stable outlook for the PMI industry through 2001 and makes the following comments on the impact of the higher FHA loan limits:

> *Congress recently increased the size limits of loans eligible for Federal Housing Administration insurance. The [FHA] limit in "high cost" areas is … not far below the GSE limit of $240,000. While FHA borrowers meet lower standards than conforming borrowers, and pay higher rates and fees for their loans, a good number of FHA borrowers are thought to qualify for the conforming market. There is no doubt that the increase in the FHA size limitation will pull eligible borrowers from the conforming market. However, borrowers who qualify for private mortgages generally have more financing alternatives as the loan amounts rise. Therefore, the portion of eligible loans that the FHA takes at these upper levels should be less than that of the loans it insures at lower levels.*[92]

Similarly, Moody's Investors Service, in an October, 1998 report on the outlook of the U.S. mortgage insurance industry, states

> *The recently approved increase of the size of eligible mortgages under the FHA programs, while denting the private mortgage insurers' volumes, is not a source of significant additional concern.*[93]

The Standard and Poor's analysis is correct in focusing on the impact of the new high cost ceiling and not the new floor. In areas affected by the higher floor, the old floor already gave borrowers access to well over half of the local sales market. Raising the floor only increased FHA access to the upper tiers of these low costs markets and made FHA financing of new construction more feasible. Rather, in the highest cost markets, which were capped by the old ceiling, the new FHA ceiling will have the greatest impact. In these high cost areas, FHA access was previously limited to the lower tiers of the local market. The increase in the ceiling will now extend FHA access to more of the higher-volume middle portion of the market. Yet, as the Standard and Poor's analysis also correctly points out, the higher dollar loan amounts suggest potential borrowers will have more alternatives in the conventional market, and when comparing FHA premiums with PMI premiums, most who qualify for a conventional loan will do so.

b. Cost Comparison: FHA Premiums are Higher

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[92] Standard and Poor's, 1999. "Stable Outlook Projected for U.S. Domestic Residential Mortgage Insurance, Industry Conditions and Outlook 1998 to 2001," Insurance Ratings Service Commentary, February 17, p. 9.

[93] Moody's Investors Service, Inc., 1998. "US Mortgage Insurers Industry Outlook," October, p. 8.

Standard and Poor's acknowledgment that FHA costs are higher than PMI costs is consistent with the Department's own analysis of the premium differentials between FHA and PMI. Except for loan to value ratios above 95 percent (which represent a very small, albeit growing, fraction of the loans that the PMIs insure) FHA's premiums are much higher than PMI premiums. For example, a 30-year $100,000 conventional loan with a 90 percent LTV ratio will typically cost a borrower about $2,900 (net present value at origination) in PMI premiums, assuming the PMI coverage is canceled when the LTV is amortized down to 80 percent. The FHA premium, which cannot be canceled without the lender's consent, will cost $6,000 for a similar loan if the loan is held to term, or $5,200 if the loan is prepaid after 8 years.[94] For the highest LTV loans – those with LTVs above 95 percent -- the PMI premium, assuming cancellation when the LTV amortizes down to 80 percent, is $6,600, or $5,500 if the loan is prepaid after 8 years. The comparable FHA premium is $7,300, or $5,200 if the loan is prepaid after 8 years.[95] Although the present value of the FHA premium on these highest LTV loans can be less than the typical PMI premium if the loan is prepaid early, very-low-downpayment loans have a tendency to prepay more slowly than loans with higher initial equity.

c. Evidence of Little Overlap Before Loan Limit Increase

Although the Standard and Poor's report states that "a good number" of FHA borrowers (prior to the loan limit increase) were thought to qualify for the conventional market, there have been numerous studies showing that the overlap between FHA and the conventional market has actually been rather small. A 1996 study by the United States General Accounting Office (GAO) documents that FHA leads in the provision of insurance for riskier low-downpayment mortgages.[96] The GAO report goes on to provide evidence that there has in fact been very little overlap between FHA and PMI loans. According to the GAO:

- 65 percent of FHA loans have downpayments of 5 percent or less, compared to 8 percent of PMI loans and less than 2 percent of loans purchased by the GSEs.

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[94] Assumes 25 percent PMI coverage, an annual PMI premium of 0.52 percent, a mortgage rate of 7.5 percent, and a discount rate of 7 percent. The PMI cost for a loan prepaid after 8 years is not shown because the PMI coverage would be canceled before the 8th year. The FHA premium is 2.25 percent upfront, plus 0.5 percent annually for 12 years. These assumptions do not reflect recent premium reduction initiatives by the GSEs and FHA under which the GSEs will reduce PMI coverage requirements and FHA will reduce its upfront premium for some borrowers. None of these initiatives have achieved high volumes as yet.

[95] Assumes 30 percent PMI coverage, an annual PMI premium of 0.9 percent, a mortgage rate of 7.5 percent, and a discount rate of 7 percent. The FHA premium is 2.25 percent upfront, plus 0.5 percent for 30 years. As noted in the prior footnote, the assumptions do not reflect recent premium reduction initiatives by the GSEs and FHA.

[96] United States General Accounting Office, 1998. "FHA's Role in Helping People Obtain Home Mortgages." GAO/RCED-96-123.

- More than three-fourths of FHA-insured first-time borrowers would not have met PMI downpayment requirements. And FHA borrowers who do have the cash for a conventional loan downpayment often fail to meet the more stringent PMI credit standards.

In addition, a recent study by the Board of Governors of the Federal Reserve concluded that FHA is the primary bearer of credit risk for home purchase loans to lower-income and black or Hispanic borrowers and in low-income and minority neighborhoods.[97] The Federal Reserve Board study concluded that FHA bears about two-thirds of the aggregate credit risk for low-income and minority borrowers and their neighborhoods, while private mortgage insurers bear only 6 to 8 percent of this risk, and the GSEs bear only 4 to 5 percent of this risk. With this demonstrated capacity to carry greater risk than the conventional market, FHA complements, not competes with, private sector efforts to expand homeownership opportunities.

d. The New FHA Loans Will Continue to Address Underserved Markets

Other sources confirm that the higher FHA loan limits, particularly those in the highest cost areas (but also other areas), can be useful in addressing many of the same underserved markets that FHA currently addresses. Appendix A refers to studies which show that homeownership rates for young married couples, female-headed households, center city residents, and racial and ethnic minorities lag far behind the national average. In addition, these homeownership gaps persist across income levels.

FHA, which currently serves a disproportionate share of young married couples, female-headed households, center city residents, and racial and ethnic minorities, will continue to address these underserved markets with the new loans based on higher loan limits.[98] Given these homeownership differences which persist across income levels, the higher FHA loan limits will enable FHA extend its service to underserved markets at higher income levels.

e. HMDA Denials by Income Level

Another source that suggests higher FHA loan limits can be useful in addressing many of the same underserved markets that FHA currently addresses is HMDA. Mortgage lending information gathered by the Federal Reserve Board under requirements of the Home Mortgage

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[97] Glenn B. Canner, Wayne Passmore, and Brian J. Surette, 1996. "Distribution of Credit Risk Among Providers of Mortgages to Lower-Income and Minority Homebuyers." *Federal Reserve Bulletin*, 82(12), 1077-1102.

[98] FHA has already been filling credit gaps by serving a disproportionate number of young first-time buyers, borrowers making low downpayments, households living in urban areas, African-Americans and Hispanics, and lower-income borrowers. HMDA data from 1996 indicate that while FHA provided mortgage credit to about 20 percent of conforming loans in metropolitan areas, it insured nearly 40 percent of all such loans made to African American or Hispanic borrowers.

Disclosure Act shows that in 1996 some 350,000 households – about one in eight applicants – were denied credit in the conforming conventional market. These denials limit homebuying opportunities for both minority and white households seeking to live in urban and suburban communities. Mortgage denial rates are particularly high for racial and ethnic minorities, but white households accounted for nearly two-thirds of the 350,000 denials. In addition to the high denial rates for racial and ethnic minorities seeking to purchase homes in inner city areas, whites choosing to live in the city are also denied mortgages at higher rates than their suburban counterparts. About a third of the 350,000 denials were made to applicants with incomes above the area median income, and nearly a fourth were made to applicants with incomes greater than 120 percent of area median income.

5. Why Small Impacts on the Conventional Market and the GSEs Are Likely

The impacts of the higher FHA loan limits on the conventional market and on the ability of the GSEs to meet their housing goals are likely to be small. The reasons for this conclusion are as follows.

First, there has been little overlap between FHA and the conventional market prior to the loan limit increase, and this is likely to be the case for newly eligible loans as well. The loan limit increase will extend FHA access to more families who are denied mortgage credit or otherwise underserved by the conventional market.

Second, the number of new FHA loans resulting from the loan limit increase is likely to be relatively small. While reasonable estimates of new FHA volume could vary, their range is likely to be under 50,000 new loans compared to FHA's total home purchase loan volume of about 800,000 in 1998. Two major Wall Street rating agencies, while not offering specific volume estimates, have suggested that the impacts of the FHA changes will be small on the private mortgage insurance industry.

Finally, many of these new FHA loans are expected to come from high cost housing markets with loan amounts typically above $150,000 and borrowers with annual incomes in excess of $60,000. Even at these higher loan amounts and borrower incomes, the FHA's higher premium costs would motivate most borrowers to favor conventional financing with private mortgage insurance if they qualified.

The new FHA loans are likely to come from borrowers who are being underserved by the conventional market, collectively resembling current FHA loans in many respects, but with higher loan amounts and borrower incomes. Differential homeownership rates as well as mortgage credit denials which persist across income levels for minority families and inner city residents provides evidence that underserved markets exist for FHA to serve at these higher loan amounts and incomes.